AMERICAN GAS ASSOCIATION MONTHLY

Aggressive Advertising Campaign Planned by A. G. A. Manufacturers' Section

Report Progress on Pipe Joint Research

K. R. KNAPP

Public Utilities in the Changing Order

R. W. GALLAGHER

Study of Economics of House Heating Load

R. A. RANSOM

Metropolitan Sales Meet Opens, Mohonk, May 24

New Problems Will Face Members Attending Natural Gas Convention Opening May 9 at Tulsa, Oklahoma

May 1933

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AMERICAN GAS ASSOCIATION MONTHLY

VOLUME XIV | MAY, 1932 | NUMBER 5

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The Association does not hold itself responsible for statements and opinions contained in papers and discussions appearing herein.

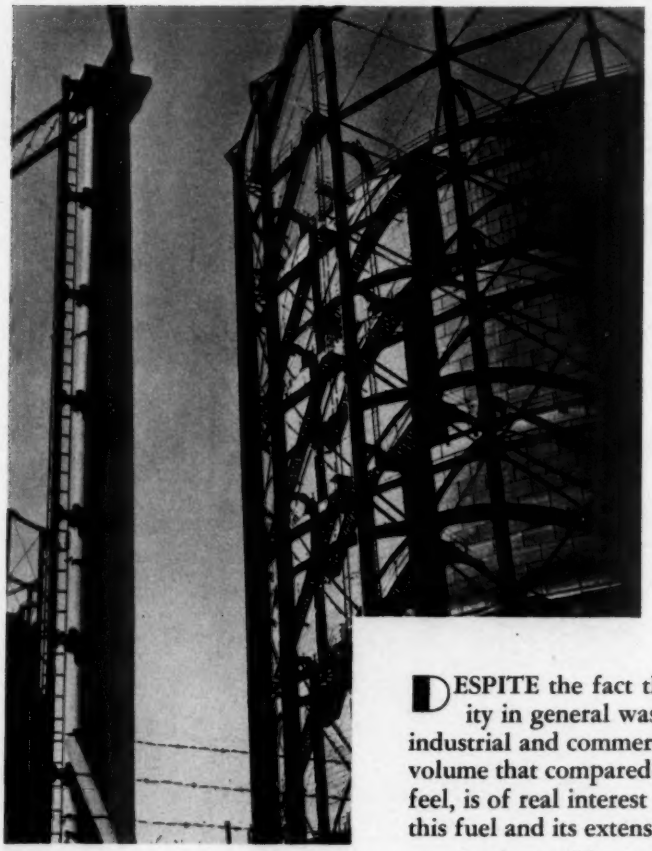
Published Monthly by the

AMERICAN GAS ASSOCIATION

Publication Office, American Building, Brattleboro, Vt.
Editorial Offices, 420 Lexington Ave., New York, N. Y.

Entered as Second Class Matter at the Post Office at Brattleboro, Vermont, February 10th, 1922, under the Act of March 3, 1879.

Subscription Rate . . . . . **$3.00 a Year**



A Far-Sighted Business Policy

▲

DESPITE the fact that the rate of manufacture and business activity in general was at a reduced level, the consumption of gas for industrial and commercial heating processes during 1931 maintained a volume that compared favorably with the use in prior years. This, we feel, is of real interest to our readers since it proves the advantages of this fuel and its extensive use in many diversified fields.

In times of business activity, methods and processes are tolerated which will not stand up under the cold light of careful cost analysis that reduced activity necessitates. Waste in industry has received much attention during the past two years. But waste can take many forms, some of them not immediately apparent.

A high rate of spoilage in manufacture, or a large percentage of seconds due to lack of uniformity or control in processes wherein heat is a factor, is one form of waste that has been eliminated in many a factory by the scientific application of gas fuel. Waste of the human element, either because of excessive hands required, or because of unfavorable working conditions, such as due to heat applications which can be improved, represents a loss which must be eliminated if a business is to operate at a profit. The expanding volume of industrial gas consumption shows very clearly that when business conditions necessitate production economies, this fuel has been the solution of many problems.

On the surface the business world appears particularly dull. But underneath it is seething with activity. Study and effort, such as never before, are being applied to overcome conditions that hamper sales. New processes, new methods are being adopted. Users of gas fuel, both commerial and industrial, are making additions to their equipment; are expending their facilities for profitable operation. To the reader who can see the facts behind this activity, the pages of this periodical present a picture that should cause real thought—and an investigation of the possible advantages of gas for his particular requirements.

—GAS GRAPHIC, published by Consolidated Gas, Electric Light & Power Company of Baltimore.

▲ ▲ ▲

While it is recognized that the amount of fuel consumed in industry must be predicated on the volume of manufacturing production, today, when the average output is lowered, is the time to prepare for the future. Present conditions cannot continue indefinitely, and the day will come—soon, we hope—when the manufacturer again will be demanding enlarged fuel service. The policies outlined in the above editorial from GAS GRAPHIC are entitled to careful consideration; it is certain that they will be accepted by every forward-looking gas utility.

AMERICAN GAS ASSOCIATION MONTHLY

Allyn B. Tunis, Editor

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Volume XIV — May, 1932 — Number 5

Aggressive Advertising Campaign Planned by A. G. A. Manufacturers' Section

PLANS for undertaking a national advertising and sales promotion campaign to stimulate an enlarged use of gas and gas-burning appliances are rapidly crystalizing under the direction of the National Advertising Committee of the Manufacturers' Section of the American Gas Association. John A. Fry, vice-president of the Detroit-Michigan Stove Company, chairman of the committee in charge of the project, has expressed himself as "gratified at the splendid indication of cooperation and confidence that manufacturer members are displaying in the movement," which he characterizes as a "hearty interest in the future welfare of our industry."

To take further and more definite steps in launching the campaign, a meeting of the Manufacturers' Section will be held soon.

According to the committee of the manufacturers, the expenditure of $2,000,000 a year for three years—a total of $6,000,000—in excess of present advertising expenditures is contemplated. It is the aim of the committee to start the campaign this summer. Actual date for launching the advertising, however, depends upon the completion of a campaign for funds. Plans have not yet reached a point where an agency has been appointed nor consideration given to advertising methods.

"The idea which will dominate this national campaign," explained Philip O. Deitsch, manager of group activities, Manufacturers' Section, and secretary of the advertising committee, "will be the modernity, economy and flexibility of gas as the ideal fuel for household cooking, heating and cooling purposes. We will employ the most effective national media for disseminating our program which will be in behalf of modern gas usage. In addition," Mr. Deitsch continued, "we hope to tie in with our plan a program of regional and local cooperative advertising and promotional work with utilities and dealers handling retail sales. Just as soon as our preliminary work is completed we will begin to set up the machinery necessary to actual accomplishment."

W. Frank Roberts, Standard Gas Equipment Corporation, Baltimore, Maryland, is credited with starting the movement for the national campaign, having been the first to suggest such a project, which was enthusiastically received by the Manufacturers' Section, and which resulted in the appointment of the Manufacturers' National Advertising Committee. The following member companies of the Manufacturers' Section are represented on this committee:

Detroit-Michigan Stove Co., Detroit, Mich.; Surface Combustion Corp., Toledo, Ohio; Geo. D. Roper Corp., Rockford, Ill.; Cleveland Heater Co., Cleveland, Ohio; Vesta Gas Range & Mfg. Co., Chattanooga, Tenn.; Bryant Heater & Mfg. Co., Cleveland, Ohio; Glenwood Range Co., Taunton, Mass.; Humphrey Div., Ruud Manufacturing Co., Kalamazoo, Mich.; American

Stove Co., Cleveland, Ohio; Standard Gas Equipment Corp., Baltimore, Md.; Electrolux Refrigerator Sales, Inc., New York; EverHot Heater Co., Detroit, Mich.; Tappan Stove Co., Mansfield, Ohio; American Gas Products Corp., New York.

It was at a general meeting of the section, held last February, that Mr. Roberts, chairman of the Range Division, presented his idea in an address entitled "National Advertising—Its Importance to Us from a Competitive Standpoint." He emphasized the following points:

1. The future of our industry is at stake.

2. We must assume a position of offensive attack.

3. The public has no proper appreciation of the utility and adaptability of gas and gas-burning appliances.

4. Community of interest and concord of action are immediately necessary.

5. Advertising is the best implement to hold what recognition we now have and to build new preferential recognition.

6. Each month's delay is costing us large losses in actual volume and profit.

A meeting of the newly appointed advertising committee was held during March at Cleveland, when representatives of the range, water heater, space heater, boiler and apparatus divisions of the section were present.

It was the consensus of opinion of the committee that a fund of not less than two million dollars per year for three years be underwritten by the manufacturers for the conduct of the national advertising campaign.

Detailed consideration was given to the plans of competitive industries in respect to their strenuous effort to win the major portion of the customer's dollar.

The conclusions of that discussion were as follows:

"1. That to gain any attention on the part of the consuming public to the utility and adaptability of gas-burning appliances and to the economy, cleanliness and convenience of gas as a fuel, it would be highly essential that our proposed campaign assume a definite aggressive and dramatic attack from the start. Modernize the heating, cooking and cooling problem of your household, at a minimum of initial cost, maintenance and operating expense, with gas, the all-purpose fuel, would probably be the suggested theme of the campaign.

"2. That any campaign that did not fully emphasize the moderness of gas-burning appliances as against the appeal to be presented by other fuels would fall far short of its intended goal.

"3. That the crisis which we face as gas appliance manufacturers calls for a program of aggressive coordination in so massing our forces as to present a united front in order to ward off the strenuous, well-organized attack of all competitive fuels."

The committee was in entire agreement with the principle that of the total amount of money subscribed to this campaign, the money collected from each individual branch of the industry, namely, ranges, water heaters, boilers, space heaters, apparatus, accessories, etc., should be expended in the national campaign in exploiting specific appliances in direct proportion to the total sum that branch of the industry contributed to the entire fund.

Every individual medium of advertising, regardless of its particular subject, will draw attention to all other appliances and apparatus. Then in the campaign, from time-to-time, different apparatus and appliances will be individually featured, so that the campaign will affect, in direct proportion, each individual member.

Because of the divergence of opinion which has existed in the utility field in respect to the financing of a national advertising campaign, it was the opinion of the committee that the proposed campaign be financed entirely through the manufacturers without active financial participation on the part of utilities. As manufacturers, they wish to conduct this campaign purely on the basis of creating and broadening the sales of their merchandise. Consequently, they do not wish to be in the position of having to consider any outside source while conducting the campaign in the way that they feel will be most beneficial to manufacturers. The manufacturers' plan and the relative necessity of the utilities' position have been discussed with the directors of the A. G. A., and they pledge utility cooperation in no uncertain terms.

At the American Gas Association Director's Meeting in Chicago, on March 15, the manufacturers' proposal to undertake the three-year campaign was formally endorsed.

There has been considerable discussion with respect to the selection of a competent and well-qualified advertising agency. The committee has no choice in this respect, feeling that there are a number of experienced and qualified agencies from which to select when the time arrives.

It was agreed upon by the committee, at the suggestion of Secretary Deitsch that no detailed consideration as to the selection of an advertising agency be made until such time as the funds are assured by the individual contributions of each branch of the manufacturing industry.

The committee in charge of this function is urging every member of the Manufacturers' Section of the American Gas Association to realize the importance of this proposal and to stand unanimously behind it. This move is designed solely to strengthen the position of the gas appliance and apparatus industry against the aggression of well-organized competition.

A. G. A. Annual Convention Takes Place in October

THE Fourteenth Annual Convention of the American Gas Association will be held in Atlantic City the week of October 10. Plans are under way to make this meeting of special value and interest to the members of the Association.

By action of the Executive Board, upon the report of a special committee, the exhibition will be suspended this year. Further announcements with regard to this event will be made from time to time in the MONTHLY.

Gas and Electricity for Domestic Heating Purposes

By R. M. CONNER

IT is recognized that city gas used for domestic heating purposes is meeting very definite competition from electricity in certain sections of the United States. This situation is particularly true in the Pacific Northwest and in several states adjacent to the Great Lakes where exceedingly low rates for electrical energy prevail. Granting, therefore, that this condition exists it is interesting to study the engineering and economic reasons for it with the hope that some general conclusions regarding the future may be drawn. No effort will be made to discuss purely commercial aspects of this competitive problem as they are outside the scope of this paper.

A consideration of this whole subject involves so many collateral factors that it is impractical to attempt to cover them all in one paper. A fairly comprehensive review of it will be found in a report recently published by the A. G. A. Laboratory. This bulletin, however, does not go very far into the engineering aspects of the situation which it is desired to cover to a limited extent herein.

Electrical energy is generated commercially usually either by steam or hydro-electric power plants. The method employed depends largely on the available fuel supply or the proximity of a satisfactory hydro-electric power plant site. The ultimate cost of this commodity, therefore, is largely a function of local conditions, although the extensive interconnection of power lines practiced in recent years is gradually changing this picture. Statistics show, however, that gas faces its most serious competition in districts where electricity is generated on a large scale from hydro-electric power plants.

Granting that the above analysis is substantially correct, we may consider briefly the future of hydro-electric power. Some extremists go so far as to predict that eventually the American people will not only cook their meals and heat water with electricity but that this source of energy will supply their house heating requirements as well. The latter development is most improbable as it would call for about 45 times as much energy as is now being generated hydro-electrically and about three times as much as the ultimate generating capacity of all the usable streams in the United States which is roughly 580×10^9 kw.hr. annually. (1)* Further analysis of this subject indicates that the average cost of hydro-electric power plants has increased from roughly $100 per kw. capacity in the early years of our country to from $300 to $600 in 1931. Furthermore electricity generated by hydro-electric plants now equals only about 33 per cent (2) of the total amount produced annually and this proportion is becoming smaller as new developments grow more costly and are located further away from available markets. Consequently it seems that hydro-electric power, although now a keen competitor of gas for domestic heating purposes in certain districts will gradually become of lesser importance from this standpoint as time goes on.

While marked advances have been made in the production of electrical energy by steam power plants, the average now being about 1.67 pounds of coal per kw.hr., (1) it must be borne in mind that most plants of this nature operate at an overall efficiency of only about 20 per cent. (2) Furthermore, it is doubtful if any extensive use of electrical energy, particularly for house heating purposes, would prevail when the very fuels from which it is generated can be utilized considerably more efficiently in the home at a cost, in some instances, per unit of volume not materially greater. Considering transmission and distribution losses at 14.5 per cent (3) it is doubtful if 15 per cent of the original energy in the initial source of fuel supply would be effectively utilized in the heating of factories or homes with electricity.

Having very briefly discussed the electrical situation we might apply a similar yardstick to the future of gas. While it is known that enormous quantities of natural gas are wasted daily in some fields, it must also be conceded that it would not be economically feasible to attempt to utilize all of it at the present time. As this fuel is often delivered to customers through long and expensive transmission lines and distribution systems it must be sold at a price that will render the utility a fair return, and within a reasonable length of time amortize the original investment. Notwithstanding these facts, however, we find that natural gas can and is being delivered from fields to centers of distribution as far distant as a thousand miles and is being sold at a cost per B.t.u. considerably below the rates prevailing for electricity.

While the future competitive situation between manufactured gas and electricity is not as favorable to the former as for natural gas, nevertheless it seems to be quite encouraging. Ex-

TABLE I

Estimated Energy Requirements of the United States for 1930

Type of Fuel	*Unit of Measurement*	*Est. Cons. in Millions*	*% Increase or Decrease over 1920*	*Equiv. Boiler Hp. in Millions*	*% U. S. Energy Requirements 1920*	*% U. S. Energy Requirements 1930*
Coal	Short Tons	531	— 19.2	380,000	69.9	53.6
Coke	Short Tons	48	— 5.9	41,500	6.4	5.8
Wood	Cords	90	+ 1.3	45,000	6.6	6.3
Petroleum	Bbls.	898	+100.1	162,000	11.9	22.8
Gas	Cu.Ft.	2,463,900	+120.0	69,200	4.5	9.8
Electricity	Kw.Hr.	120,000	+175.0	12,300	0.7	1.7

*Numbers in parentheses refer to bibliography at end of paper.

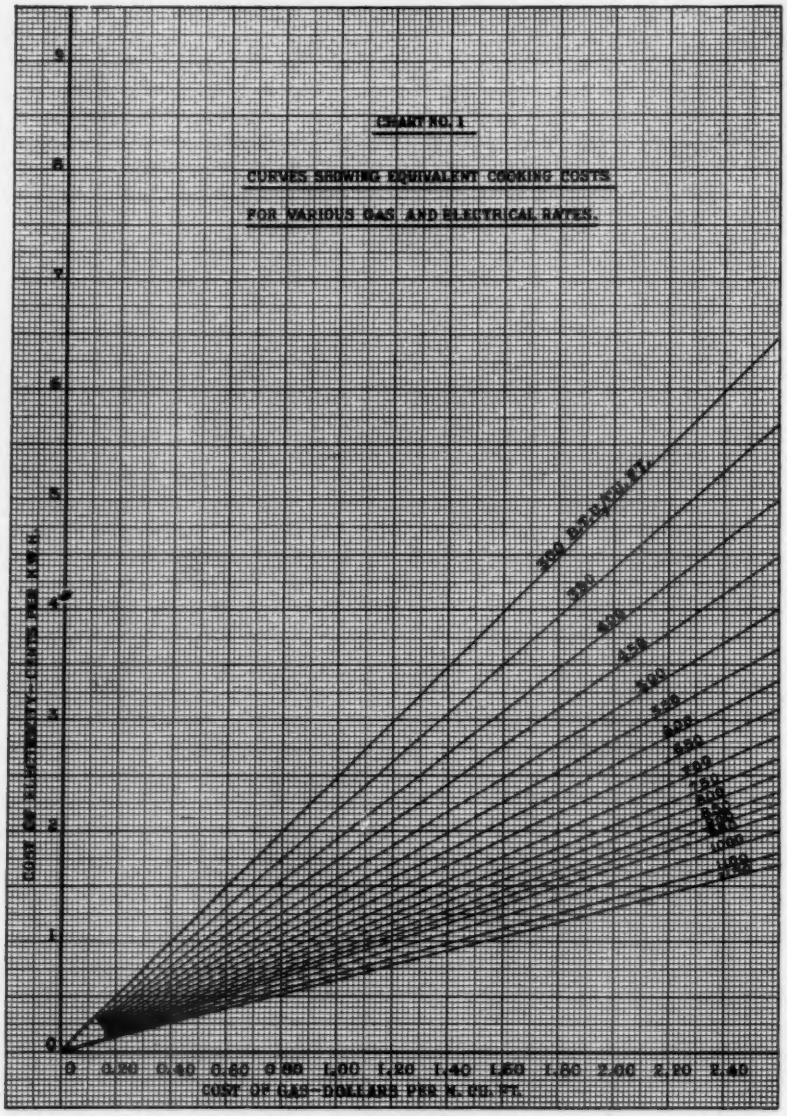


CHART NO. 1
CURVES SHOWING EQUIVALENT COOKING COSTS
FOR VARIOUS GAS AND ELECTRICAL RATES.
COST OF GAS—DOLLARS PER M. CU. FT.
0 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.20 2.40

Chart 1

cept for a very few isolated cases manufactured gas now sells at a considerably lower average cost per B.t.u. than electrical energy. As time goes on it seems reasonable to assume that this difference in commodity cost will be maintained, if not actually increased. The use of refinery gases for enrichment purposes, mixing of gases, and many other recent developments in the process of producing manufactured gas should act to maintain lower operating costs for gas-burning equipment.

Another new and promising development that should assist the gas industry in maintaining its economic advantage is the use of liquefied petroleum gases in rural districts. These fuels afford an opportunity to secure a class of business that under other circumstances might be forever lost to city gas.

A study of Table I will show that the use of petroleum, gas and electricity has increased materially during the past 10 years, while that of coal, coke and wood, if not barely holding their own, are actually losing ground. These data indicate the manner in which the nation's total energy requirements are being met and while it appears that the use of electricity is increasing faster than gas, it can be seen that it still does not supply nearly as large a percentage of the nation's energy requirements as gas. Furthermore, if these statistics are analyzed far enough it will be seen that the increase in the use of electricity is not due to the replacement of gas as a fuel but to the increased residential lighting load, the electrification of farm and factory machinery and railroads, and many of the other more or less non-competitive uses of electric power.

Practically everyone in the American gas industry will concede the residential lighting load to electricity. Where heating operations are involved, however, this is another matter. Just as electricity by virtue of its characteristics seems best adapted to residential lighting purposes, gas on account of its lower first cost, ease of application and constancy of supply, seems best fitted to provide the fuel requirements of the modern home. Such uses, of course, would logically include cooking, water heating, house heating, and in many instances refrigeration.

The relative cost per B.t.u. of energy supplied to the customer can be readily computed. Taking into account carrying charges, efficiency in utilization,

TABLE II
Comparative Costs of Gas and Electricity for Domestic Cooking Purposes

Item	*Electricity*	*Gas*	*Excess of Electricity Over Gas, Per Cent*
1. Est. initial cost of range	$150.00	$100.00	50
2. Est. annual carrying charge (Assum. 10 yr. life)	15.00	10.00	50
3. Est. annual cost of maintenance	2.50	1.50	66
4. Ave. cost of service per unit of measurement	*0.0352	*1.14	—
5. Est. monthly consumption kw.hr. or cu.ft.	85	1200	—
6. Est. monthly cost of energy	2.99	1.37	118
7. Est. monthly carrying charge	1.25	0.83	50
8. Est. monthly maintenance costs	0.21	0.12	66
Total Monthly Cost of Service (Items 6, 7 and 8)	$ 4.45	$ 2.32	92

*Average costs of manufactured gas and electric service supplied, respectively, by the American Gas Association and the National Electric Light Association.

and commodity cost, the cost of service therefore can easily be derived. It is felt that the factors of cleanliness and convenience are about equal for modern types of gas and electric domestic appliances, notwithstanding many sales arguments to the contrary. The success which has accompanied the sales efforts of most concerns merchandising electric appliances is attributed more to the results of effective advertising and the aggressiveness with which such sales campaigns are carried out rather than to any fundamental advantage that electrical equipment might possess.

Table II gives some comparative statistics on the cost of gas and electricity for domestic cooking purposes.

Based on average rates, taking into account carrying and maintenance charges, it can be seen that the cost of electricity for cooking is approximately twice that resulting from the use of manufactured gas. As natural gas has, roughly, twice the average heating value and its average cost is about 38 per cent less than that of manufactured gas, its ultimate cost for domestic cooking purposes should average less than one-third that of electricity.

The above figures do not take into account installation charges which vary widely for electric ranges and are usually from two to three times higher than for gas ranges. This fact, of course, makes the comparison still more favorable to the use of gas.

A very rough estimate of the number of gas ranges now in service is 15,000,000 (4) while the most recent material available on electric ranges seems to indicate that about 1,000,000 (5) such appliances are in use.

It is considerably more difficult to compare the cost of heating water than it is for domestic cooking for the reason that the hot water requirements of the American people vary much more widely than they do for cooking. Furthermore, there are at least three general and distinct kinds of water heating systems, such as the manually controlled, instantaneous and automatic storage types. The class of service employed naturally affects the size of the customer's monthly bill. Further than this, we have the differences in the initial costs of equipment and corresponding variations in resultant

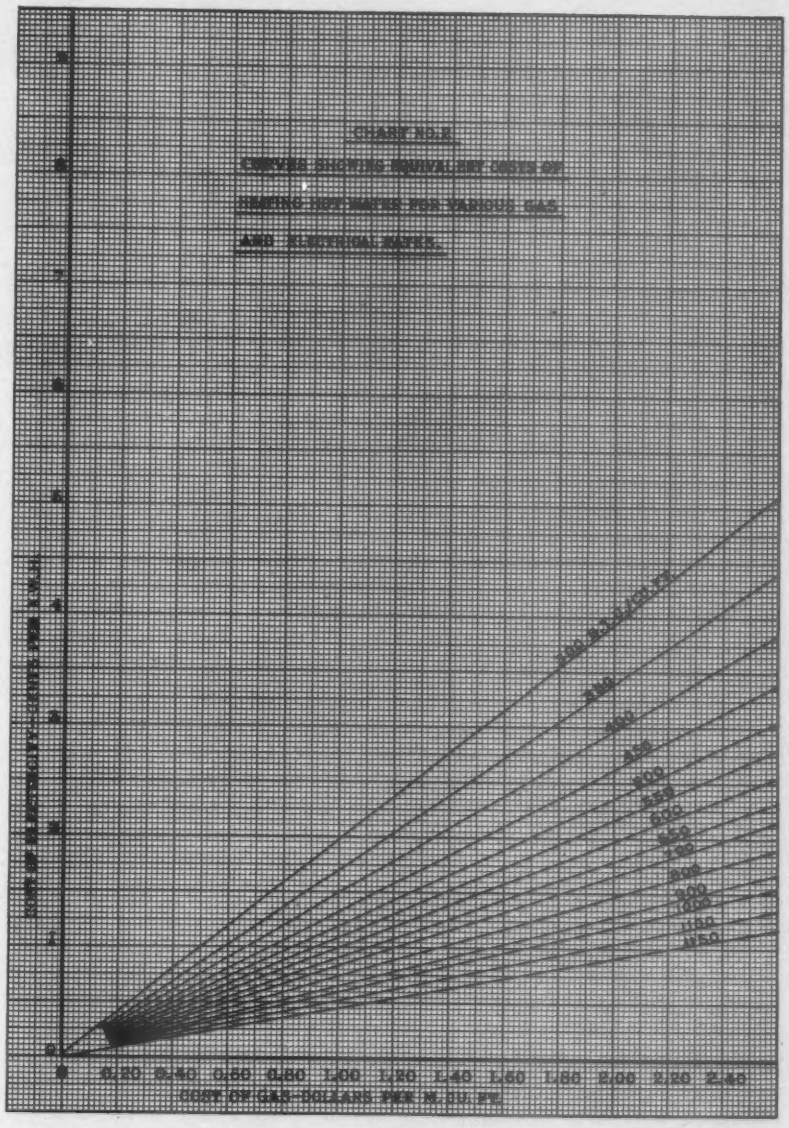


Chart II

installation, carrying, and maintenance charges.

A rather elaborate investigation of domestic water heaters using modern gas and electric appliances was made by the A. G. A. Laboratory in 1931. This study indicated that the initial cost of comparable types of electric water heaters was, roughly, 50 per cent greater than for gas. Installation charges for electric water heaters vary widely and average about twice as high as for similar kinds of gas water heaters. Manufactured gas operating costs of the latter average about 50 per cent that of electric heaters. Still further, the use of double throw and automatic time-clock switches and off-peak heaters limits considerably the available amount of hot water that can be obtained from electric heaters and by virtue of this fact occasionally interferes with the supply in such a manner as to cause annoyance to the customer. (6)

Taking into account differences in maintenance costs, carrying charges, operating costs, etc., it seems quite fair to assume that the total cost of supplying hot water service through

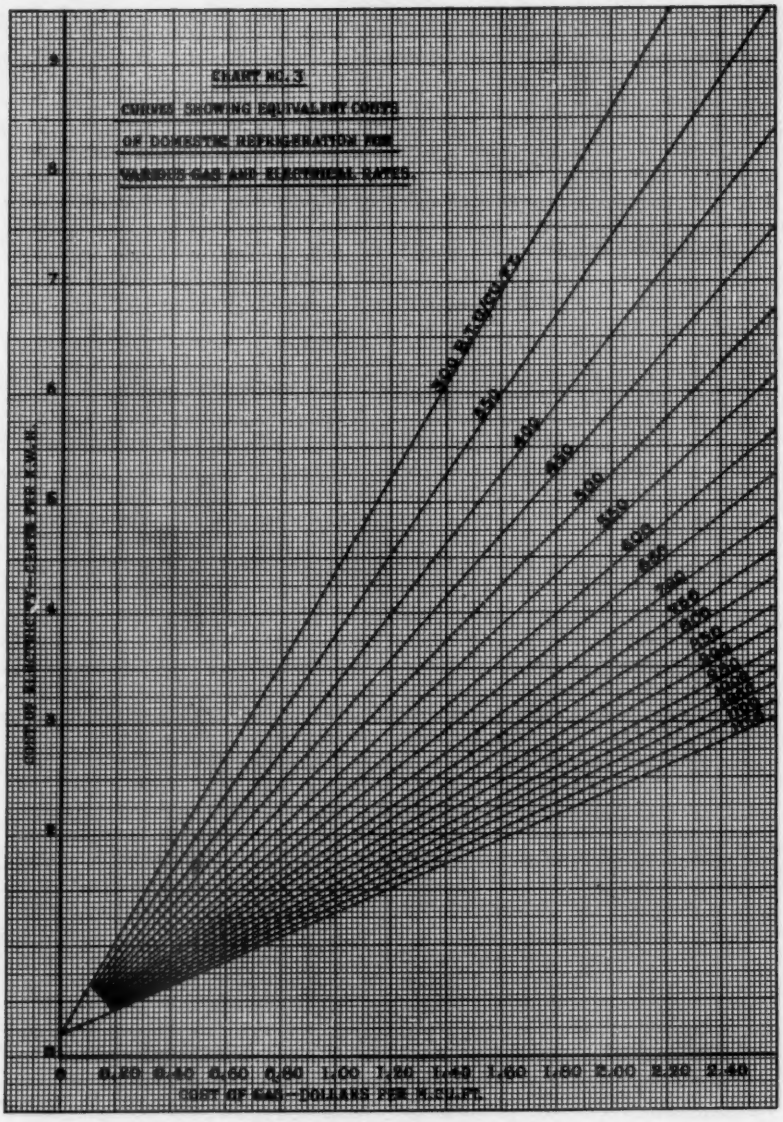


CHART NO. 3
CURVE SHOWING EQUIVALENT COSTS
OF DOMESTIC REFRIGERATION PER
MONTH GAS AND ELECTRICAL RATES
COST OF ELECTRICITY PER K.W.H.
COST OF GAS—DOLLARS PER M.CU.FT.

Chart III

the medium of electricity would average, roughly, twice as great as gas in manufactured gas territories and, roughly, four times as much where natural gas is available. At the present time there are, roughly, 7,000,000 (7) gas water heaters in use compared with about 160,000 (8) different types of electric water heaters.

It is, of course, realized that a few electric utilities supply current during off-peak hours at a flat rate charge which is equal to, if not actually less, than that charged per B.t.u. for energy sold in the form of gas. Where comparable service is supplied this often means that electricity is sold below one cent per kw.hr. Justification for such a rate, when some customers in the same territory are charged as high as eight or even nine cents per kw.hr. for current for residential lighting purposes, is a matter that is open to question.

It really seems unnecessary to consider electricity seriously for central heating purposes, as the possibilities of such a development yearly become more remote. In the first place, if it were necessary to produce such tremendous amounts of electricity it is very doubtful if it could be done as economically as at present. Still further, the cost of such service even at prevailing rates would be entirely out of line with competitive fuels, and aside from this it is believed that the modern type of central heating gas appliance actually provides a more acceptable form of house heating service.

Gas refrigeration is a comparatively new development, yet in some territories, particularly New York City, equipment of this nature is competing very successfully with electrical units. The fact that this situation does exist in a manufactured gas territory where water rates are at least average, seems to indicate that gas refrigeration should be ideally situated from a competitive standpoint in natural gas territories.

Assuming a water rate of $1 per thousand cubic feet and a consumption of 1.7 gallons per hour for a five-foot box, and an average natural gas rate of 70 cents per thousand cubic feet, the total operating costs of a gas refrigerator per month should amount to about 82 cents. This figure would compare with, roughly, $2.32 for the same class of electrical refrigeration service. Carrying charges and maintenance costs are not included in this comparison as they would probably be so nearly equal when taken over the entire United States that they may logically be neglected. At the end of 1930 it is estimated that there were approximately 200,000 (9) domestic gas refrigerators in use compared with about 1,800,000 (10) electrical units.

It is readily understood that there are many other factors to be taken into consideration when purchasing a range, water heater, refrigerator or space heater, other than those of first costs and operating costs. It is impractical to enumerate all such items, much less discuss them. There are a few outstanding points, however, that it is felt warrant brief comment herein. One of first importance is speed in performance. Tests conducted by the A. G. A. Laboratory in 1931 on comparable types of gas and electric ranges indicate that the former require, roughly, two-thirds the time to accomplish the same amount of work as an electrical unit of similar capacity. When water heaters are taken into account the comparison is even more favor-

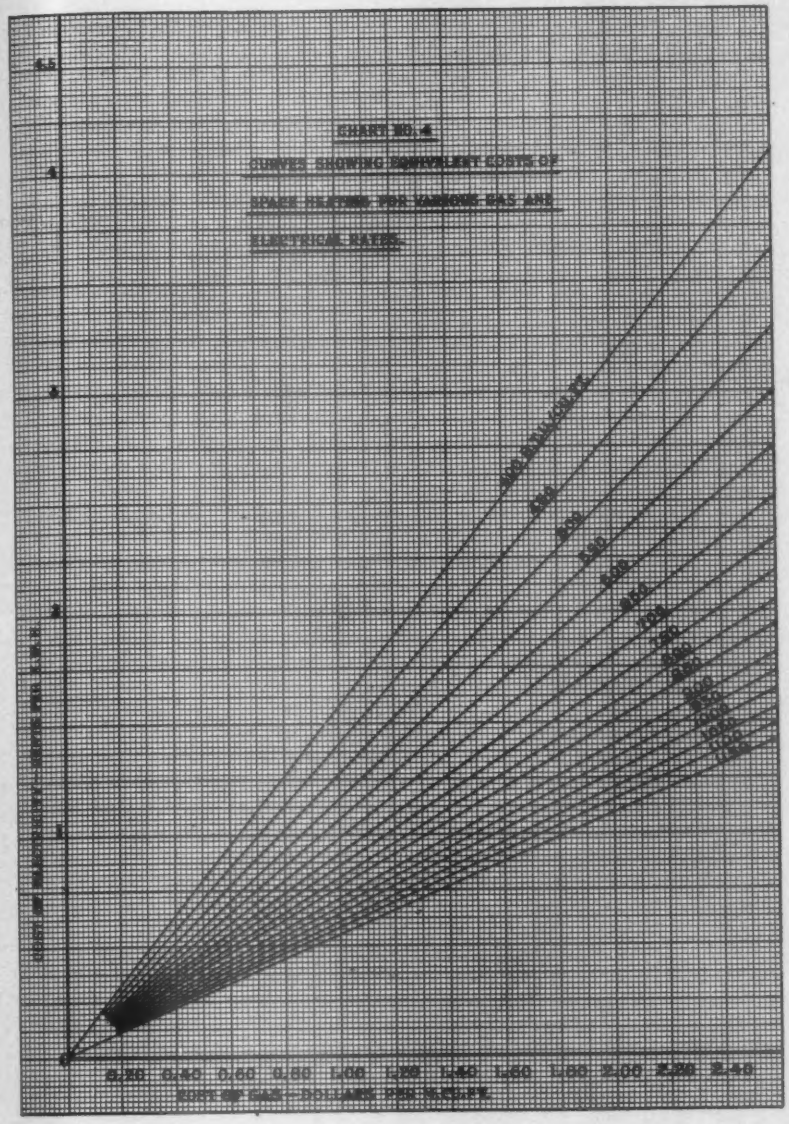


Chart IV

able to gas. Tests on three gas and two electric water heaters comparable as to type and of the same storage capacity demonstrated that the gas heaters require from one-half to one-tenth the time to accomplish the same amount of work.

So much has been said on the subject of meat shrinkage in discussing different kinds of cooking service that it is thought well to comment on this subject briefly. Table III which follows, gives comparative data on shrinkage tests. While this work was conducted at the American Gas Association's Laboratory (1931), the tests in each instance were made under exactly similar circumstances and by home economic experts who had no active interest in either industry.

Although it is known that different types and designs of ovens would give slightly different results, it seems unreasonable to assume that the nature of the original source of heat supply would have any direct bearing on the final results.

From time to time the item of cleanliness has been brought up in discussing the relative merits of gas and electric appliances. It seems this consideration is used more often as a sales argument against gas equipment than electricity, notwithstanding the fact that there is considerable that can be said on both sides. Generally speaking, criticisms of this nature are aimed at the gas range. Often it is maintained that the dark greasy deposits found on some kitchen walls originate from the gas. Actually they are the product of grease which arises from the cooking and mixes with dirt present in the kitchen atmosphere. It is admitted that some moisture is formed during the normal process of combustion from the open top gas range burner, although at the same time it should be pointed out in fairness to gas that this feature in many instances is a desirable characteristic. It is believed that in most of the homes heated by central heating plants today regardless of the nature of the fuel involved, the relative humidity in the heated portions of the building is too low. Consequently, some added moisture should not come amiss.

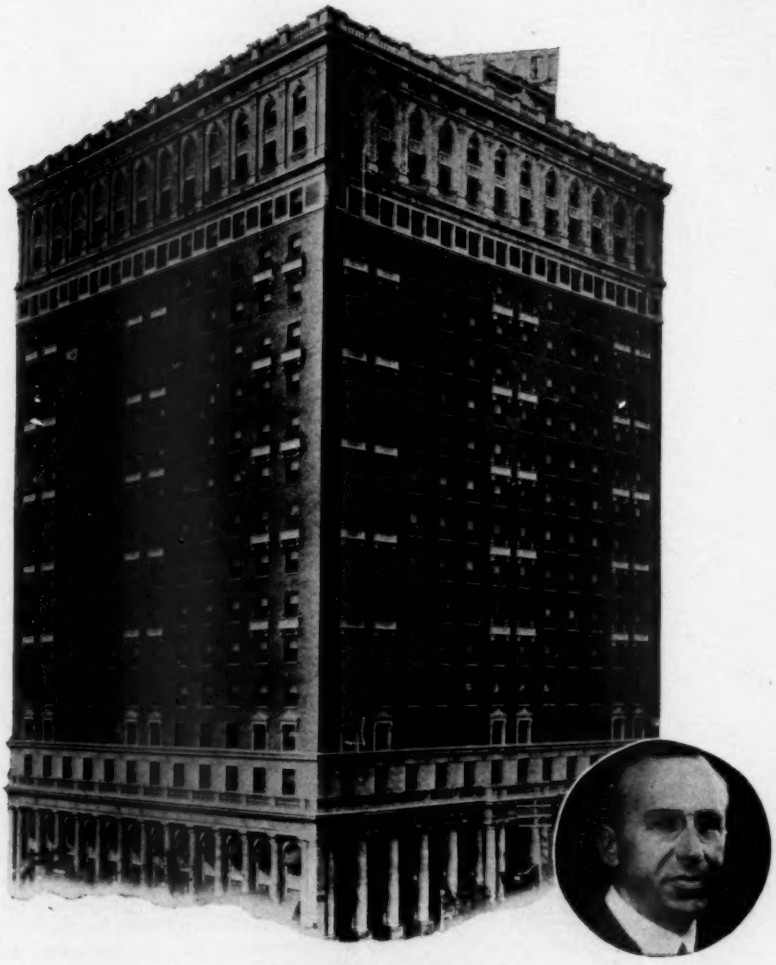
Gas and electric rates vary so widely that it might be contended that it is inaccurate to generalize on the cost of such classes of service. To assist those interested in actually comparing costs under local conditions, Charts I, II, III and IV have been prepared. Chart No. I shows equivalent electric rates in cents per kw.hr. as compared to various city gases, ranging in heating values from 300 to 1150 B.t.u., with rates varying up to $2.50 per thousand cu.ft. Efficiencies in utilization have been taken into account but not maintenance or carrying charges. This same general scheme has been fol-

(Continued on page 216)

TABLE III
Shrinkage Tests

Item	Electric Ranges		Gas Ranges		
	A	B	A Insulated	B Insulated	C Non-Insulated
Shrinkage—average per cent for each range	18.94	22.25	19.80	21.50	21.35
Shrinkage—average per cent for each type	20.59			20.88	

Natural Gas Convention Will Face New Problems



Mayo Hotel, Tulsa—Natural Gas Convention Headquarters. Insert, T. J. Strickler, Kansas City, Chairman, Natural Gas Department of the American Gas Association

THE Annual Convention of the Natural Gas Department, American Gas Association, which will take place May 9, 10 and 11 at Tulsa, Okla., and is expected to attract many natural gas men from all parts of the country, will represent, in its concentration and scope, an effort to measure up to the exacting demands of the present and to further uphold the traditions of its past. The astounding rapidity of development and the magnitude of growth of the natural gas industry has given rise to new problems and made these annual meetings of greater significance in advancing technical research and education and in shaping future policies for industrial and domestic utilization of natural gas. The Program Committee has realized this importance and prepared its program accordingly.

Tulsa, the convention city, offers unusual attractions to delegates, harboring as it does one of the most highly developed natural gas systems in the world, the Oklahoma Natural Gas Corporation, which is typical of Southern industrial development and expansion in recent years. It is an interesting city with a pioneering background and, until recently, a several-year record of a million dollars a month spent in new building. The climate is considered ideal and the city's spirit of hospitality, and adequate facilities for maintaining that spirit, are widely recognized. The air-minded will be interested to know that Tulsa's flying field is rated among the best in the United States.

Inspection of the Oklahoma Natural Gas Corporation's system has been arranged for and it is apparent that many engineers will take advantage of this privilege. This system serves gas to Tulsa and about sixty other Oklahoma cities and towns and boasts one of the most extensive transmission systems in existence. Gas progress from well to burner tip, through large compressor stations en route, will provide an educational picture seldom seen in its complete detail.

H. C. Morris, chairman of the Program Committee, and his colleagues have produced a program which covers a wide variety of subjects and is of vital and sufficient interest to assure practical values in a period when values are balanced and measured with mathematical precision. The increased scope of this year's convention is reflected in such addresses as that discussing the general utility situation by J. F. Owens, president of the National Electric Light Association; that on oil, gas and the banks and their relation to public welfare, which is included under the title, "This Changing World" by Walter Ferguson, vice-president of the Exchange National Bank, of Tulsa, and still another on the general conditions in the industry by E. B. Reeser of the Barnsdall Corporation, of Tulsa.

The recent widespread agitation designed to prevent utility appliance merchandising and which has resulted

To Take Part in Tulsa Meeting

R. W. Gallagher

H. C. Morris

H. C. Cooper

Alexander Forward

J. F. Owens

H. C. Abell

E. L. Rawlins

J. D. Creveling

C. H. M. Burnham

H. O. Loebell

F. L. Chase

E. F. Schmidt

B. F. Pickard

N. C. McGowen

H. O. Caster

E. A. Olsen

R. M. Redding

R. J. Daugherty

H. A. Wallace

Samuel Insull, Jr.

in restrictive legislation in several States has created an acute situation which has stirred the gas industry to greater effort toward dealer cooperation. Dealer cooperation principles and programs have received serious study and two papers have been prepared for the convention handling this subject—one by LeRoy M. Edwards of the Southern Counties Gas Company, Los Angeles, Calif., which presents the need and justification for utility selling; the other by A. E. Bettis, of the Missouri Association of Public Utilities, Kansas City, Mo., which depicts dealer cooperation by affiliated associations. Other sales problems will be dealt with by Samuel Insull, Jr. in an address on "Major Future Sales Problems."

Rate legislation and taxes constitute additional pressing and controversial problems which tend to focus strongly upon public utility industries. Judge H. O. Caster, of Henry L. Doherty and Company, New York City, who is particularly well-qualified to speak on these subjects, has agreed to present a paper which will clarify some of the issues involved. Another feature on the program of general interest is an innovation in the form of informal addresses by gas company executives.

Technical research studies have been pursued with unabated vigor in many directions and it is expected that committee and other reports on the various projects will reveal excellent results. Some of the engineering problems on the program, besides those covered in the report of the Main Technical and Research Committee include studies of large diameter transmission lines, water vapor in natural gas, deep drilling and large pipe line construction practice, and problems met in saturation measurement and control in gas lines. It is also planned to have a report on the conservation of gas in completion of well drilling and gas well deliveries.

An unusual and interesting study is provided in the form of a picture of Rumania's burning well, presented by M. M. Kinley, of Tulsa. This fire burned for nearly three years and had resisted all efforts to extinguish it until Mr. Kinley successfuly completed the job.

All convention sessions will be held in the crystal ball room of the Mayo Hotel. However, there are many other hotels conveniently located and which offer comfortable accommodations. Entertainment features will start Monday evening with a barbecue and informal dance. On Tuesday evening there will be a cabaret banquet and dance for the delegates and the ladies. A bridge luncheon will be given for the ladies Tuesday noon at the Tulsa Club and a number of prizes will be awarded.

The program follows:

MONDAY, MAY 9

9:00 A.M.

A joint meeting of our Subcommittee on Code for Testing Natural Gas for Gasoline Content and a Committee of the Natural Gasoline Association of America will be held in the Main Private Dining Room, Mezzanine Floor, Mayo Hotel.

10:00 A.M.

Meeting of the Main Technical and Research Committee and Subcommittees, Main Private Dining Room, Mezzanine Floor, Mayo Hotel.

2:00 P.M.

The first Session of the Convention will be held in the Crystal Ball Room, sixteenth floor, Mayo Hotel.

6:00 P.M.

Barbecue and Dance at the Tulsa Country Club.

6:00 P.M.

Meeting of the Managing and Advisory Committees, Natural Gas Department, French Room, Mezzanine Floor, Mayo Hotel.

7:00 P.M.

Annual Dinner, Managing and Advisory Committees, Natural Gas Department, English Room, Mezzanine Floor, Mayo Hotel.

MONDAY

Afternoon

2:00 P.M.

1. OPENING REMARKS BY THE CHAIRMAN
   T. J. Strickler
   Chairman, Natural Gas Department
2. INVOCATION
   Dr. C. W. Kerr
   Pastor, First Presbyterian Church
   Tulsa, Okla.
3. ADDRESS OF WELCOME
   Herman F. Neublock
   Mayor of Tulsa
4. ADDRESS
   E. A. Olsen, President
   Oklahoma Natural Gas Corporation
   Tulsa, Okla.
5. ADDRESS OF THE CHAIRMAN
   T. J. Strickler, Vice-President
   Kansas City Gas Company
   Kansas City, Mo.
6. APPOINTMENT OF COMMITTEE ON CHAIRMAN'S ADDRESS
   L. K. Langdon, Vice-Chairman
   Natural Gas Department
7. PRESIDENTIAL ADDRESS
   R. W. Gallagher, President
   American Gas Association
8. ADDRESS, ASSOCIATION WORK
   Alexander Forward, Managing Director
   American Gas Association
9. "THIS CHANGING WORLD"
   Walter Ferguson, Vice-President
   Exchange National Bank, Tulsa, Okla.
10. INFORMAL ADDRESSES BY GAS COMPANY EXECUTIVES
    F. L. Chase, Vice-President
    Lone Star Gas Company
    Dallas, Texas

Barbecue and Dance. Automobiles will leave the Mayo Hotel at 6:00 P.M.

TUESDAY, MAY 10

Morning

9:30 A.M.

1. APPOINTMENT OF COMMITTEE ON FINAL RESOLUTIONS
   T. J. Strickler, Chairman
   Natural Gas Department
2. DEALER COOPERATION, THE NEED AND JUSTIFICATION FOR UTILITY SELLING
   LeRoy M. Edwards
   Southern Counties Gas Company
   Los Angeles, Calif.
3. DEALER COOPERATION BY AFFILIATED ASSOCIATIONS
   A. E. Bettis
   Missouri Association of Public Utilities
   Kansas City, Mo.
4. OUR MAIN TECHNICAL AND RESEARCH COMMITTEE
   H. C. Cooper
   Hope Natural Gas Company
   Pittsburgh, Pa.
5. DEVELOPING NEW USES FOR GAS AND THE NEED FOR SUCH ACCOMPLISHMENT
   Henry O. Loebell
   Combustion Utilities Corporation
   New York City, N. Y.

The official Convention photograph will be taken at the close of the Tuesday morning session. The Bridge Luncheon for the ladies begins at 1:00 P.M. at the Tulsa Club.

TUESDAY, MAY 10

Afternoon

2:00 P.M.

1. GENERAL CONDITIONS IN THE INDUSTRY
   E. B. Reeser
   Barnsdall Corporation
   Tulsa, Okla.
2. RATE LEGISLATION AND TAXES
   Judge H. O. Caster
   Henry L. Doherty and Company
   New York City, N. Y.

3. LARGE DIAMETER TRANSMISSION LINES
E. F. Schmidt
Lone Star Gas Company
Dallas, Texas

4. WATER VAPOR IN NATURAL GAS
C. H. M. Burnham
Colorado-Wyoming Gas Co.
Denver, Colo.

The Cabaret Banquet and Dance will take place in the Crystal Ball Room, Mayo Hotel, at 7:00 P.M.

WEDNESDAY, MAY 11

Morning

9:30 A.M.

1. WRINKLES
H. J. Hoover, Editor
Natural Gas
Cincinnati, Ohio

2. NATURAL GAS FELLOWSHIPS
J. B. Tonkin
Peoples Natural Gas Company
Pittsburgh, Pa.

3. RECENT DEEP DRILLING AND LARGE PIPE LINE CONSTRUCTION PRACTICE IN THE EAST
H. A. Wallace
United Fuel Gas Company
Charleston, W. Va.

4. CONSERVATION OF GAS IN COMPLETION OF WELL DRILLING AND GAS WELL DELIVERIES
N. C. McGowen
United Gas Public Service Company
Houston, Texas
and
E. L. Rawlins
U. S. Bureau of Mines
Bartlesville, Okla.

5. GENERAL UTILITY SITUATION
J. F. Owens, President
National Electric Light Association
Oklahoma City, Okla.

6. RUMANIA'S BURNING WELL
M. M. Kinley
Kinley Brothers
Tulsa, Okla.

WEDNESDAY, MAY 11

Afternoon

2:00 P.M.

1. MAJOR FUTURE SALES PROBLEMS
Samuel Insull, Jr.
Midland United Company
Chicago, Ill.

2. PROBLEMS MET IN SATURATION MEASUREMENT AND CONTROL IN GAS LINES
W. W. Frymayer
The Foxboro Company
Foxboro, Mass.

3. QUESTION BOX AND DISCUSSION
J. D. Creveling
Henry L. Doherty and Company
New York City, N. Y.

4. REPORT OF COMMITTEE ON CHAIRMAN'S ADDRESS

5. REPORT OF COMMITTEE ON FINAL RESOLUTIONS

6. FINAL BUSINESS AND CLOSING REMARKS

CONVENTION COMMITTEES

GENERAL ARRANGEMENTS COMMITTEE

E. A. OLSEN, Chairman, *Tulsa, Okla.*
R. W. HENDEE, Vice-Chairman, *Tulsa, Okla.*
J. B. CORRIN, *Pittsburgh, Pa.*
P. E. EDDY, *Chicago, Ill.*
T. H. KERR, *Columbus, Ohio*
F. W. KIRK, *Houston, Texas*
A. W. LEONARD, *Kansas City, Mo.*
J. R. MUNCEE, *Pittsburgh, Pa.*
W. J. O'BRIEN, *Memphis, Tenn.*
F. F. SCHAUER, *Pittsburgh, Pa.*
J. H. WHITE, *Birmingham, Ala.*
W. S. YARD, *San Francisco, Calif.*

PROGRAM COMMITTEE

H. C. MORRIS, Chairman, *Dallas, Texas*
F. H. BROOKS, *Omaha, Neb.*
F. C. BROWN, *Chicago, Ill.*
R. H. HARGROVE, *Houston, Texas*
R. C. HOFFMAN, JR., *Chicago, Ill.*
WILLIAM MOELLER, JR., *Los Angeles, Calif.*
H. L. MONTGOMERY, *Bartlesville, Okla.*
E. A. MUNYAN, *Cincinnati, Ohio*
E. F. SCHMIDT, *Dallas, Texas*
GEORGE WEHRLE, *Denver, Colo.*
T. R. WEYMOUTH, *New York, N. Y.*

PUBLICITY COMMITTEE

B. F. PICKARD, Chairman, *Tulsa, Okla.*
R. J. DAUGHERTY, *Bartlesville, Okla.*
JOHN L. FLETCHER, *Shreveport, La.*
WINFIELD FOSTER, *Chicago, Ill.*
W. C. GRANT, *Dallas, Texas*
C. D. GREASON, *Kansas City, Mo.*
W. M. HINES, *Tulsa, Okla.*
CHARLES JORDAN, *San Francisco, Calif.*
REID S. MCBETH, *Tulsa, Okla.*
RAY RATLIFF, *Kansas City, Mo.*
PAUL RENSHAW, *Memphis, Tenn.*
W. D. THURBER, *Los Angeles, Calif.*

LOCAL ENTERTAINMENT COMMITTEE

WILLIAM B. WAY, Chairman

W. H. BAGLEY	CARL J. MANNING
C. A. BREITUNG	L. M. MORRIS
P. G. ESTILL	E. H. POE
L. A. FARMER	J. H. SATTERWHITE
F. W. INSULL	D. C. WILLIAMS
A. J. KERR	FRED E. WOLCOTT
B. L. MAULSBY	S. E. WOLFF

W. J. YOUNG

HOSTESS COMMITTEE

MRS. R. C. ALLEN	MRS. F. C. LONG
MRS. C. A. BREITUNG	MRS. C. J. MINNIG
MRS. S. CANTERBURY	MRS. R. S. MCBETH
MRS. W. K. COTTRELL	MRS. F. W. PETERS
MISS M. ELLIOTT	MRS. B. F. PICKARD
MRS. R. W. HENDEE	MISS F. RUSH
MRS. F. W. INSULL	MRS. J. SATTERWHITE
MRS. A. J. KERR	MRS. I. UNDERWOOD
MRS. F. E. KISTLER	MRS. D. WILLIAMS
MRS. G. A. LACKEY	MRS. S. E. WOLFF

Death Ends Long Career Of Albert M. Barnes

ALBERT MALLARD BARNES, president of the Cambridge Gas Light Company, Cambridge, Mass., and for years an active member of the American Gas Association, died March 31 at Pinehurst, N. C., following an attack of pneumonia.

Mr. Barnes was born in Lancaster, Mass., in 1848, the son of John Wallace and Adeline Barnes, and was fitted for college at the Lancaster Academy. In 1871 he received the degree of A.B. at Harvard University.

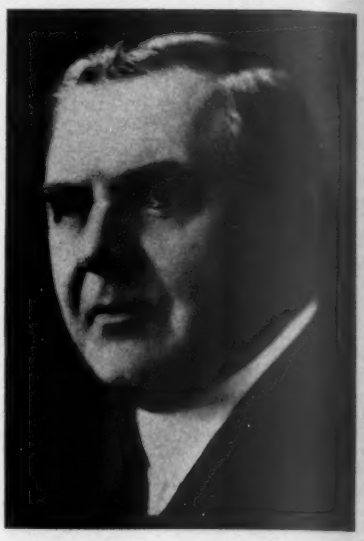
In 1871 he joined the firm of Foster, Candler & Co., Boston, and in November of the following year was sent as a supercargo to West Africa. He returned to this country in 1874, and two years later was admitted as partner under the style of Charles O. Foster & Co.

He took an active part in Cambridge civic affairs, serving as a member and later as chairman of the Cambridge School Committee, and for twenty years was a trustee of the Cambridge Public Library, and president of that body from 1892 to 1895.

In 1897 he was named treasurer of the Cambridge Gas Light Company and continued in that office until he was designated as general manager in 1907. He became president and general manager in 1912.

He was a former president of the New England Association of Gas Engineers and president of the Association of Massachusetts Gas Companies for a long while. He belonged to the Guild of Gas Managers; was a director of the Harvard Trust Company, and a member of the following clubs: Harvard, Faculty, Cambridge and Oakley Country Club.

Halford Erickson Dies at Home



Halford Erickson

HALFORD ERICKSON, vice-president in charge of operation, Byllesby Engineering and Management Corporation, Chicago, and an active member of the American Gas Association, died April 7, at his home in Oak Park, Illinois.

Mr. Erickson was born July 7, 1864, in Sweden, where he received his early education. He came to the United States in 1884 and attended the university in Minneapolis, supplementing a technical education in the Swedish Military Academy and a liberal general education with special studies in law, economics and engineering, including finance, statistics and similar lines.

He entered the service of the Chicago, St. Paul, Minneapolis and Omaha Railroad in 1890, serving the company in various capacities until he was appointed commissioner of labor of Wisconsin in 1895. He held this office until 1905, when he was appointed a member of the first railroad commission of Wisconsin by Governor La Follette. In 1907, public utilities, such as gas and water companies, telephone companies, electric light and power companies, were also placed under the jurisdiction of this commission. The laws drafted by this commission, together with those formulated by the New York State commission, which was appointed the same year, 1907, formed the basis for public utility regulation in all of the forty-seven States which have since created centralized regulatory commissions.

Because of the part he played in establishing Wisconsin law and the decisions which he largely fixed in the early stages of public utility regulation, he was sought in council by the public service commissions of States where public service commissions were newly created. As a result of these various activities Mr. Erickson was often referred to as the "father of state regulation."

When he resigned as chairman of the commission in 1916, Mr. Erickson was the only member who had served continuously since its establishment in 1905. The enviable reputation which this commission enjoyed was declared to be due in no small measure to the efficient and untiring efforts of Mr. Erickson as its chairman.

In 1916, Mr. Erickson became associated with William J. Hagenah in making appraisals and other investigations of public utility properties. Headquarters of the firm of Hagenah and Erickson were in Chicago. While associated with Mr. Hagenah, Mr. Erickson made studies of all of the larger utility companies and even after his association with Byllesby Engineering and Management Corporation often was called as consultant on matters of rates, valuations, franchises, etc., when precedents which had been established by the Wisconsin commission were applied and accepted as general authority.

Mr. Erickson joined the Byllesby organization in 1918, as vice-president of Louisville Gas and Electric Company. He served in that capacity for five years. In January, 1923, he was elected a vice-president and director of Byllesby Engineering and Management Corporation, in charge of operation of all subsidiary utility properties of Standard Gas and Electric Company.

As chief operating executive of the properties in this system, Mr. Erickson occupied a prominent position in the public utility field. He was well known as an authority on public utility regulation and on holding company control and management, as well as on franchise, valuation and rate questions. When he was with the Wisconsin Railroad Commission, he gave a number of addresses and wrote several articles on rate making, valuation and regulation. While he was with the Louisville Gas and Electric Company he discussed the indeterminate franchise before the public utilities committee, Chamber of Commerce of the United States, in May, 1919, and presented a statement to the Federal Electric Railway Commission in Washington on "Financing—State vs. Local Regulation and Service-at-cost Plan" on July 25, 1919.

After he became connected with Byllesby Engineering and Management Corporation as vice-president, he delivered addresses before such organizations as the National Association of Railroad and Utilities Commissioners, various state commissions and utility associations, and published several articles on group utility management and finance and allied subjects.

In addition to being vice-president of Byllesby Engineering and Management Corporation, Mr. Erickson was vice-president, director and member of the executive committee of a number of subsidiary companies in the Standard Gas and Electric Company system, as well as of Standard Gas and Electric Company, and H. M. Byllesby and Company.

Commenting on Mr. Erickson's death, John J. O'Brien, president, Byllesby Engineering and Management Corporation and Standard Gas and Electric Company, said:

"In the passing of Halford Erickson I have lost a friend of long standing, and the Byllesby managed public utility system has lost a strong and able operating head. Mr. Erickson had the confidence and affection of everyone who worked with him, blending as he did a kindly humor

(Continued on page 221)

John C. D. Clark Dies In Seventieth Year

JOHN C. D. CLARK, for many years an active figure in the development of the gas industry, died on April 1, at the home of his son, Horace H. Clark, Wilmette, Illinois. Mr. Clark, who was widely known throughout the gas industry, was in his seventieth year.

In 1882, Mr. Clark joined the Chicago Gas Light and Coke Company. When the lighting load began to fall, he pioneered the plan to put gas ranges on sale at the rate of "$1 down, and $1 a month" payment basis, and thereby was enabled to build up a large demand for gas cooking in a short space of time. He also was instrumental in developing a profitable outlet for gas by developing the gas arc lamps on the lease and rental basis; at one time there were as many as 125,000 4- and 5-mantle gas arc lamps giving service in Chicago.

In 1903, he became commercial agent of the Laclede Gas Light and Coke Company, St. Louis, and returned to The Peoples Gas Light and Coke Company in 1907, where he put in four years. He left Chicago in 1911 to become general manager of the Utah Gas and Coke Company, where he remained until 1916, and then went to Boston as sales manager of the Boston Consolidated Gas Company, remaining there until 1927, when he was appointed general manager of the United Merchandising Company, a subsidiary of the United Public Service Company.

His last connection was senior partner in the firm of John Clark & Sons in the investment and securities business.

He leaves two sons, Horace H. Clark, partner of John Clark and Sons, and John C. Clark, vice-president of the E. F. Griffiths Company, Philadelphia.

Allison J. Van Brunt Dies Suddenly In Newark

A. J. Van Brunt

ALLISON J. VAN BRUNT, director of safety education, Public Service Electric and Gas Company, since 1913, died suddenly in his office in the Newark, N. J., Terminal Building, April 5. Mr. Van Brunt had been suffering from a heart ailment about a year.

Mr. Van Brunt was nationally known for his work in the interest of "Safety First," a slogan which he helped to coin. One of the organizers of the National Safety Council and directly responsible for the organization of safety councils in several New Jersey municipalities, Mr. Van Brunt is credited with having done much to further the cause of accident prevention.

A pioneer in the East in the formation of safety patrols in the schools, Mr. Van Brunt fostered the idea and helped to organize these patrols in many cities and towns throughout New Jersey. One of the last public addresses Mr. Van Brunt made was at a conference in Camden on the subject of safety patrols.

From the first time the prone pressure method of resuscitation proved its efficacy in reviving victims of gas asphyxiation, electric shock and drowning, Mr. Van Brunt was its staunch supporter. In this respect, he was again a pioneer, because he was one of a committee who urged the adoption of the method in this country. Thousands were taught this method of resuscitation by Mr. Van Brunt and every Public Service Company employee was instructed in it either by him or by one of his assistants.

Police, firemen and other municipal employees in many localities also owe their knowledge of the resuscitation method to Mr. Van Brunt. For having successfully applied this method of resuscitation, medals have been awarded to hundreds in this state—the McCarter Medal to employees of gas companies which are members of the American Gas Association, the Insull Medal to employees of electric companies which are members of the National Electric Light Association, and the National Safety Council President's Medal to persons over ten years of age who are eligible.

Many who were able to save lives by the prone pressure method owe to him the fact that they knew what to do when the emergency arose.

Born in Brooklyn, N. Y., August 31, 1862, Mr. Van Brunt was sixty-nine years old and would have retired on pension in a few months. He had been with Public Service since August, 1908, having started as an investigator in the Claim Department. He became director of safety education in June, 1913. Prior to coming with Public Service he was employed by the Bell Telephone Company in New York and, as a young man, he was associated with his father in the steamship business. He was a Spanish-American War veteran and served in France during the World War as a Y. M. C. A. worker.

A member of the American Gas Association, National Safety Council, and American Society of Safety Engineers, Mr. Van Brunt served on many important committees of these organizations. He was a member of the South Orange Elks and the Newark Athletic Club.

Robert L. Burch Dies Suddenly

ROBERT LEE BURCH, sixty-one years old, Western Syndicate Manager, of Henry L. Doherty & Company, Chicago, Illinois, died suddenly March 31. He was a veteran newspaper man, and a native of Nashville, Tenn. During his newspaper career he edited his father's paper, the *Nashville American*, now the *Tennessean*, toured the country with John L. Sullivan, the pugilist, for the Associated Press, and later worked on the Chicago *Journal of Commerce*.

He is survived by two sons, Charles Lee, Jr., and Hill M. Burch, both of Chicago.

C. J. Yorath Is Dead

C. J. YORATH, president and managing director of The Canadian Western Natural Gas Light, Heat & Power Company, Calgary, Alberta, Canada, and a member of the American Gas Association, died April 2.

Birmingham Steps Out With Gas Range "Style Show"

W. A. Hudson

THE Birmingham Gas Company, Birmingham, Ala., steps out in front against business depression and electric competition with an unusually fine promotional program on gas ranges. Starting with a "Style Show" and climaxing with an intensive range campaign, sales are at present most satisfactory. All of which goes to prove that careful planning, unusual promotion and lots of man power can get results even in times like these.

Display used at Birmingham Gas Company's "Style Show"

By W. A. Hudson

General Sales Manager,
Birmingham Gas Company

The first step in this promotional campaign was the style show on gas ranges in which some of the leading manufacturers in America participated. Several thousand invitations were mailed to leading club women of Birmingham to assure a high class attendance. Radio announcements were used three days before and during the show. This publicity was augmented by newspaper advertisements and publicity stories. Hundreds of women attended the show and displayed marked interest in the new gas range styles.

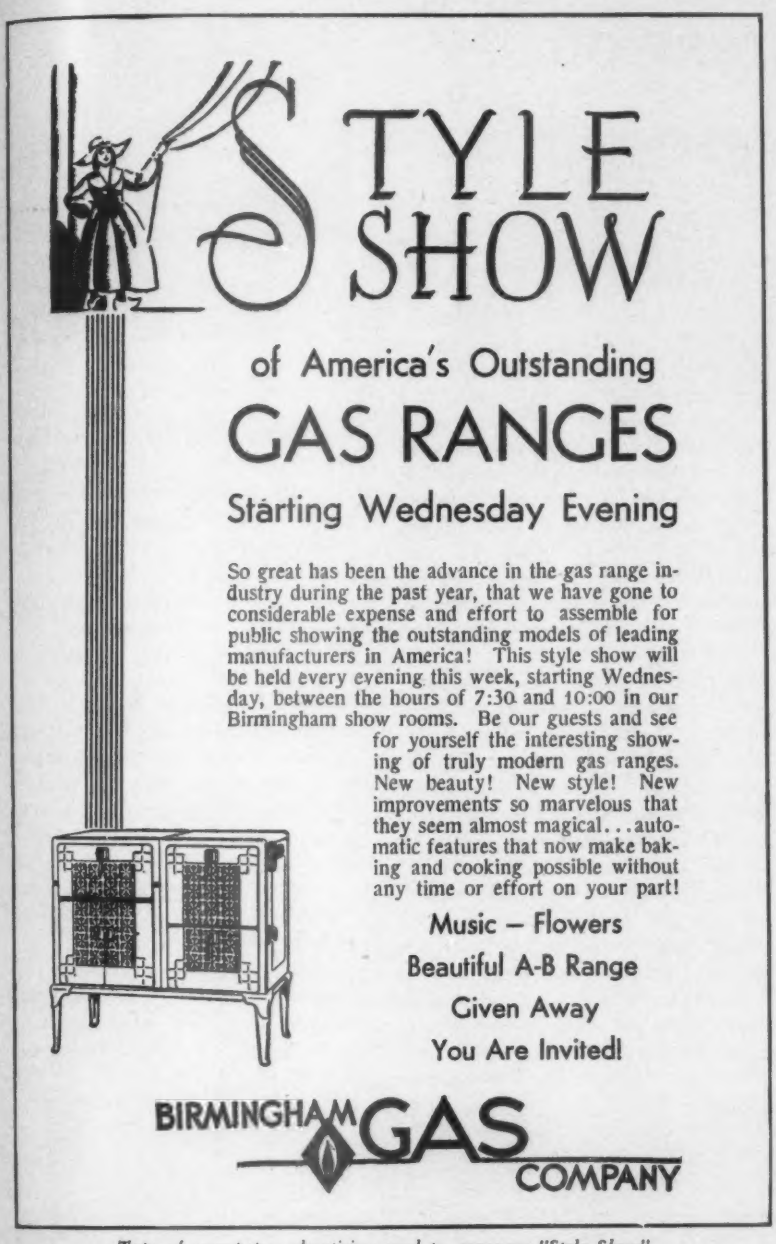
Just preceding the opening of the show a general employees' meeting was held one evening at which practically one hundred per cent attendance was noted. A sample range of each manufacturer was on display together with one of the oldest models of gas ranges, approximately thirty years old, which was equipped with a gas light at the side of the top oven. The history of gas range development was given together with a short sales talk on each range by the salesmen. The purpose of the show was explained together with an announcement of the gas range sale which would immediately follow. Enthusiasm was built up in a contest between departments on employees' tips and special prizes and compensation was arranged for outstanding results by employees turning in tips which were closed.

The display opened on Wednesday evening and continued through Saturday afternoon and evening. It was conducted only at night, after business hours, from 7:30 to 10:00 P.M. Guests were invited to register for a free gas range which was awarded Saturday, the last night of the show. Each guest was presented with a rose bud and supplied with any literature on the various gas ranges in which she might be interested. Music was furnished by an orchestra, composed of employees of the Birmingham Gas Company.

Although no direct effort was made to sell a range during the show, each evening all appliance salesmen were on duty, with special factory representatives from the following manufacturers: American Stove Company, Tappan Range Company, A-B Stove Company, Estate Stove Company, and Birmingham Stove & Range Company. The factory representatives gave a liberal education to the gas company's salesmen. It is the opinion of the gas company management that the money and effort expended on the "Style Show" was worth while because of the training received by the salesmen and the educational and promotional effect on the public for many months to come. It is felt that considerable progress was made against impending electric competition, because of the fine reception by the public of this show.

A check up on results derived from the style show are as follows: Number of guests attending 1,455; number of women registering for prize range 718; number of sales closed with prospects developed during style show 28. All guests who registered during the show were followed up with regular direct mail campaign during the gas range sale.

Immediately following the Style Show, the Birmingham Gas Company took an active part in a community cooking school conducted by Miss Marie DeBoth and sponsored by a


STYLE SHOW
of America's Outstanding
GAS RANGES
Starting Wednesday Evening
So great has been the advance in the gas range industry during the past year, that we have gone to considerable expense and effort to assemble for public showing the outstanding models of leading manufacturers in America! This style show will be held every evening this week, starting Wednesday, between the hours of 7:30 and 10:00 in our Birmingham show rooms. Be our guests and see for yourself the interesting showing of truly modern gas ranges. New beauty! New style! New improvements so marvelous that they seem almost magical...automatic features that now make baking and cooking possible without any time or effort on your part!
Music — Flowers
Beautiful A-B Range
Given Away
You Are Invited!
BIRMINGHAM GAS COMPANY

Type of newspaper advertising used to announce "Style Show"

local newspaper. Over 25,000 Birmingham women attended this show and were afforded an excellent opportunity of receiving first-hand information of the many advantages of cooking with gas. According to officials of the cooking school the women were completely sold on the new automatic features and improvements of the modern gas range. Many direct sales resulted from Miss DeBoth's efforts and sales talks on automatic ranges. The cooking school extended through four full days and was climaxed with the award of the full automatic gas range which was used for demonstration.

The Birmingham Gas Company, taking full advantage of the cooking school, launched an intensive sales campaign on gas ranges on the opening day. Terms of $1 down and up to $23 for an old stove, were prominently featured in all advertisements. After the first week of the drive, newspaper advertising was tapered off and "man-power" pushed to the limit. Special sales meetings were held each morning during which each salesman was assigned a daily quota and urged to make that quota before he went home. There were cases where actual sales of ranges were closed as late as 9:30 at night in the prospect's home. At this writing the sale still has two weeks to run, and reports show that quotas are being met.

As a result of careful preparation of advertising, promotional efforts and salesmen's training, high priced ranges were sold almost entirely averaging $120 each and many automatic ranges were sold for as high as $185.

Style's the Thing

That the gas range has gone modern to an extent far beyond the realization of many people, even within the industry, Alexander Forward, managing director of the American Gas Association, addressing the convention of the Mid-West Gas Association, in session April 11, at St. Paul, Minn., laid down an authoritative formula of essentials found in this most important item of kitchen appliances.

He said that to be modern today any domestic equipment must give speedy service; it must have style, and appeal to the sense of beauty; it must rate high in the matter of cleanliness; it must be efficient in the results produced; and it must be convenient in operation. He added that it also must be dependable and safe in every way and must furnish satisfactory service with the maximum economy.

Setting forth what he described as a "credo" of today's gas stoves, Major Forward said:

"The modern gas range fills this bill of particulars with astounding completeness.

"The modern gas range has no peer in the efficient preparation of a quick meal.

"The modern gas range's insulated oven contributed to economy and to the comfort of the homemaker.

"The modern gas range's design and color-enamel finish add greatly to the decorative possibilities of the kitchen. We are told that every woman can have style, though not always

(Continued on page 221)

Report Progress on Pipe Joint Research*

By K. R. Knapp

Chief Engineer,
American Gas Association
Testing Laboratory

THE subject of repairing of old bell and spigot joints has received the greater amount of our attention during the past year. At a meeting of the Pipe Joint Committee held during the 1931 Distribution Conference at Cincinnati, work was authorized on the testing of 36-inch leak clamps to determine whether the results which had thus far been obtained in the smaller sizes could also be extended to large joints. This has been largely completed and in addition, a considerable amount of work performed on new and improved designs of clamps for smaller sizes. While considerable delay was caused by the late arrival of some of the larger clamps which were submitted, it has been possible to test a sufficient number so that it is now felt that recommendations may safely be made on the method of procedure to be followed, as well as on the particular clamps to be used. Accordingly, a substantial part of this paper will be devoted to an account of the test work which has been conducted on the larger size clamps, so that the manner in which our different recommendations have been reached may be entirely clear.

In addition to the work on repair methods, some further experiments were conducted during the summer of 1931 on new 16-inch joints, in order to confirm some of the tentative conclusions which had been reached on the use of rubber rings in the making of joints of this size. Some further work was also carried out using the same design of rubber rings in 4-inch centrifugal pipe. These points will be considered later in the report.

In addition to the items mentioned, a large amount of attention has been devoted to the testing program for the Cast Iron Pipe Research Association. A brief outline of the conduct of this investigation to date was presented a year ago. Since that time several further tests have been undertaken with quite interesting results. A definite plan of test procedure based on the results which have already been secured is now being worked up in connection with the Cast Iron Pipe Association and from present indications, additional test work will be conducted according to this revised schedule and extended to cover larger sizes.

These different portions of the investigation will be taken up in their proper order.

Figure 2

* Submitted to Ninth Annual Distribution Conference, Birmingham, Ala., April 6, 7, 8, 1932.

Summary of Conclusions and Recommendations

Repair of Old Joints

It is considered that leak clamps offer the most practical and advisable means for the permanent repair of leaking cast-iron bell and spigot joints. The recommendations here given have been found to apply to 6-, 16- and 36-inch sizes and it is felt that this range is adequate to allow the application of the results to intermediate sizes. For the most successful performance of

Figure 1

leak clamps, their design should provide for the following:

1. Ample cross-sectional area of the gasket. The width should be substantially greater than the width of the joint space.

2. The segments of both the clamp rings should be of such design as to afford ample rigidity. Means should be provided to insure a secure and substantial method of locking together the individual segments so that substantially a solid ring may be formed when finally assembled. It has been found that such construction is necessary to prevent excessive distortion of the clamp ring which would result in a release of compression on the gasket. This matter is of particular importance in large size clamps.

3. It is important that careful consideration be given to the bell dimensions of the pipe to which the clamp is to be applied. Clamps are available to fit the majority of the bells usually encountered in service.

Figure 3

4. Some of the newer designs of clamps are so constructed that they may be adjustable to allow for variations in the outside diameter of the pipe to which they are to be applied. It is considered desirable that the clamps be fitted as closely as possible to the pipe so as to prevent undue motion.

The following clamps are considered as meeting these requirements and are recommended for use as shown:

6"—Carson
Dayton—New Style
Dresser—New Style, No. 4½ hp.
Skinner—New Style, No. 1 hp.

16"—Carson
Dresser—New Style, No. 4½ hp.
National

36"—Dayton—New Style
Dresser
National
Skinner

In addition, tests still remain to be made on certain clamps which the respective manufacturers have arranged to submit as soon as specimens are in readiness.

In preparing a joint to receive a clamp care should be taken that the following conditions are observed:

1. The surfaces of the joint and the adjacent metal should be thoroughly cleaned.

2. When lead joints are used they may be re-caulked to face up the joint surface as nearly as possible flush with the bell. If the lead is recessed more than ⅛ inch after re-caulking, it is

Figure 4

advisable to cut it out to a depth of at least ½ inch. Cast lead or lead wool properly caulked may then be used to reface the joint flush with the bell face. If so desired, the joint may be refaced with cement after cutting out not more than ½ inch of the top lead, using the method given below for cement joints.

3. For cement joints the top cement may be cut out to a depth of not more than ½ inch and the joint refaced with neat cement. Care must be taken to finish off the cement smoothly and flush with the bell face. The clamp may be applied immediately to the green cement.

4. A thin coat of gasket compound or similar lubricant should be applied to the area to be covered by the gasket. This may also be applied to the joint of the gasket unless a special material is provided for the purpose. Soapsuds or liquid soap have been found satisfactory for this use. Where a joint has been refaced with cement, no lubricant need be applied to the joint.

Generally speaking, it is considered that rubber gaskets are preferable to those of the duck-tipped type.

Figure 5

New Joints

The following recommendations for new construction are made based on the results of tests on 4-inch and 16-inch joints:

In considering these recommendations, it must be remembered that the test conditions were probably more severe than normally occur in actual practice, the distortion being greater and the test for leakage made with a clean dry gas, namely, air. Such conditions are naturally much more severe than may have normally occurred in most instances in the past under comparatively low pressures and where saturated manufactured gas was used. A considerable tendency now exists towards change-overs to excessively dry natural gas, which produces a drying out of the joints accompanied by an increase in leakage. For such excessively severe conditions the following recommendations are made:

1. Cement joints are not recommended for pressures much above 10 inches of water and should be restricted as far as possible to the smaller sizes. No. 1 A. G. A. standard bells should be used.

Cement is not considered suitable for joints as large as 16 inch. The joint material in this size is so weak in respect to the pipe as to be unable to withstand the action of external forces tending to deform it.

2. Cast lead joints are not considered satisfactory for new construction. Lead offers but little resistance toward deformation and is unable to return to its original position when once deformed. Lead joints are thus likely to leak readily.

3. Lead wool joints are expensive to prepare and it is doubtful whether they can be depended upon to stand up under service conditions. The objection to the use of cast lead applies to a certain extent to lead wool. This may be overcome somewhat by more effective caulking, such as by air tools.

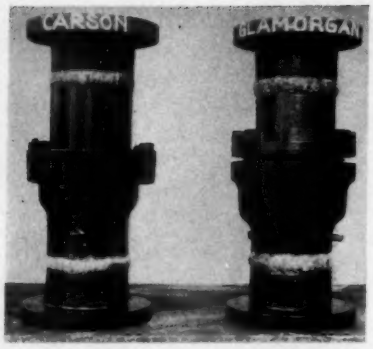


Figure 6

The workmanship in the preparation of such joints is of great importance.

4. The use of two concentric rubber rings with inclined faces in contact and held in place by cement, is recommended for joints up to 16 inches in size and pressures above one-half pound. Such joints have been found tight under severe test conditions at 50 pounds pressure. Their use is recommended for working pressures up to 25 pounds.

5. Mechanical joints such as the Anthony, Dresser, and Doublex Simplex, all of which make use of rubber rings as gaskets, are recommended for use with cast-iron mains for pressures above 25 pounds. These have been tested out and found tight for pressures up to 150 pounds under conditions even more rigid than those used for bell and spigot joints.

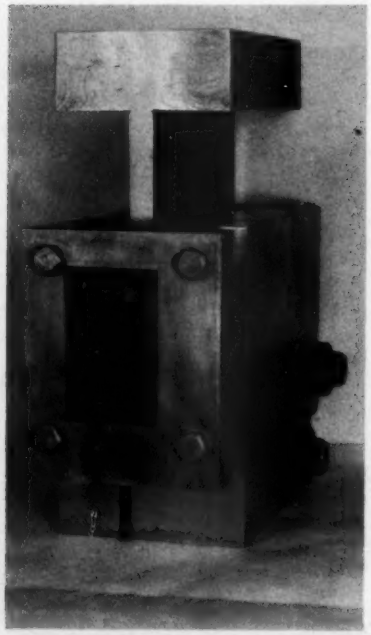


Figure 8

Testing of Large Size Leak Clamps

The general method followed in determining the comparative performance of the various leak clamps examined was to mount the clamp upon a test joint and to subject the clamped joint to a definite series of lateral deflections both up and down. A pressure chamber was formed within the pipe so that a definite air pressure could be maintained on the clamped joint during the test. Leakage was observed by the use of soapsuds and it was possible to detect the presence of even a slight leak as soon as it occurred. In spite of these severe test conditions, a large number of cases were encountered where the joint was entirely tight throughout the test as it was conducted.

A testing machine, which was installed last Fall at Case School of Applied Science in Cleveland, was used for all of the tests on the large sized leak clamps. A brief description of the preparation of a test specimen will be given here. The full lengths of 36-inch pipe with No. 1 A. G. A. standard bell were purchased. It was not considered advisable to attempt to use the entire volume of the two lengths as a pressure chamber on account of the amount of energy which would be confined and the amount of air which it would be necessary to compress each time a test was made. Accordingly, a pressure chamber around the joint only was made up in the following manner:

A band was bolted around the inside of each pipe about a foot back from the face of the bell and the end of the spigot. A heavy rubber gasket was laid against this band which was about 1 inch thick and a heavy reinforced circular steel plate placed against the gasket. When the joint was made up and pressure applied to the chamber, it was found that while some leakage occurred at low pressures, the rubber was tightly compressed as the pressure increased, and the joint made entirely tight. In this way by the use of a pressure chamber less than 2 feet long, the volume was

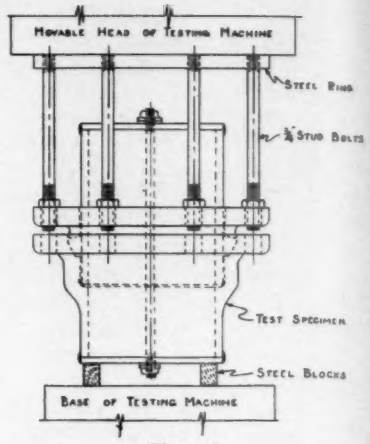


Figure 7

reduced to an amount that could easily be handled. It was found that the arrangement was entirely satisfactory for the purpose of test.

The standard test procedure called for supporting the clamped specimen on two supports each spaced 8 feet from the face of the bell, thus providing a 16-foot span. This span was made as long as possible so that the load necessary to deflect the joint could be held within reasonable limits. At the same time it was not desired to have the supports too far apart as this

Figure 9

would have placed too much of a load upon the joint due to its own weight. The procedure used called for the deflection of the joint a distance of one inch first in one direction and then one inch in the opposite direction, the pipe being rotated through 180° after each deflection. Four deflections in all were applied, these being made up of two each at points 180° apart. In securing this one inch deflection the angle which the line of each pipe made with the horizontal amounted to about ½°. Considering, however, the 36-inch diameter of the specimen, a deflection through this angle resulted in separating the end of the spigot from the shoulder at the bottom of the bell to a distance of about ¾ inch. In view of the internal pressure of 25 pounds maintained on the specimen an end thrust of approximately 25,000 pounds was set up on the end plates. The result of this was that when the specimen was turned over and deflected in the opposite direction, there was a noticeable tendency for the spigot to move out of the bell. This made it impossible to carry on more than a few reversals without remaking the joint before a new clamp was applied. Naturally, this increased the time required for carrying on these tests to a considerable extent.

All joints were made out of yarn and cast lead caulked by air tools. The joint was faced up properly for the reception of the clamp in all cases. Most of the tests were made using a gasket compound, but in a number of instances the gasket was applied to the bare metal. Trial was made of the ordinary gasket cement as well as graphite and oil, liquid soap and soapsuds. The results, in general, were much more satisfactory when a lubricant of some sort was used. However, from the fact that satisfactory results were obtained from practically all the compounds which were attempted, it appears quite certain that the use of such material serves mainly as a lubricant for the rubber and by its presence allows the rubber to assume its proper position more readily on pulling up the bolts which force the follower ring in place. For this reason the use of a lubricant is strongly recommended.

A 16-inch joint was also mounted in the testing machine for test. For the 16-inch joint a span of 10 feet was used, the deflection remaining the same as before, namely one inch. The end of each specimen was capped. These caps, however, were held in place by several bolts for the purpose of additional security. No difficulty was encountered in mounting this specimen. When deflected through one inch the end of the spigot was separated from the shoulder at the bottom of the bell by about ½ inch. There was, however, very little noticeable motion of the spigot out of the bell, this probably being due to the fact that the end thrust on the caps was insufficient to keep the spigot from moving back into position when the direction of deflection was reversed.

Figs. 1, 2, 3, and 4 show several of the clamps which have recently been tested.

A number of tests were also conducted on new designs of clamps in both 6-inch and 10-inch sizes. In general, the same method was followed as just outlined and with similar results.

In addition to the repair methods which involve the use of leak clamps, some work was also done on the application of rubber rings to old joints for the purpose of effecting a repair. In spite of a large amount of work on this subject, it was found impossible to make a satisfactory application of a rubber ring to an old joint under the conditions encountered. These were far more favorable than would be likely to be obtained in practice. For this reason no further attention has been paid to the use of rubber rings for repair purposes during recent tests. It is felt that nothing has thus far occurred to change the original opinion that such methods of repair were not to be recommended for general use.

Other Tests

The principal work which has recently been done in the matter of new joints consisted of a number of tests which were carried out at the University of Pennsylvania during the past Summer. These were made largely for the purpose of checking up some preliminary information which had previously been secured on the use of two concentric rubber rings with inclined faces in contact, and held in place by cement tightly driven by the use of braided jute yarn. Several joints of this kind were tested by the push and pull method. It was found that the results were distinctly favorable and it was possible to construct joints in this manner in which no leakage occurred during the entire series of tests. Little difference was noted in the performance of joints of this type made by hand and those made with air tools, provided the necessary precautions were observed in both cases. It is felt that good results can be obtained with both methods. Care must be taken, however, to see that the yarn is caulked back hard enough to provide a suitable seat for the rubber and that the rubber is thoroughly driven into place before cement is put into the joint. Thorough driving of the cement is also necessary to secure a tight joint.

Several tests were also made on 4-inch specimens of centrifugal pipe. The same type of rubber ring was used here as for the 16-inch specimens, and the joints were made similarly throughout. It was found that very satisfactory results were secured, and it was possible to obtain joints which would pass satisfactorily through the entire test cycle. These particular tests were made to determine what performance would be secured with pipe of this kind in which no bead is furnished on the spigot end. It was found that the results were comparatively little different from those secured when pipe of the ordinary kind was used. The principal difference was that a considerably lower load was needed to effect the same movement of the joint, due, no doubt, to the absence of the bead.

No further work has been conducted on the different combinations of cement and lead and lead wool in new joints. It is felt that this subject has been sufficiently covered by previous experiments and that the recommendations made as a result of the former work sufficiently cover these types of joints.

Mechanical Joints

Fig. 5 shows the original joints on which work on this subject was started and which were described at the conference a year ago. Since that time tests on two additional joints have been requested. These are known as the Carson and the Glamorgan joints,

and are shown in Fig. 6. The Carson joint is of the bolted type, making use of a bell recessed to receive a rubber gasket held in place by a gland, which is forced down by bolts. These bolts are distinctive in that they make use of a special head which fits behind the flange of the bell, and is so shaped as to prevent turning of the bolt. In general this design of joint makes use of much the same bolt design as does the leak clamp of the same name.

The Glamorgan joint represents a boltless type. A gasket of the same general design as used in other joints of the bolted type, is seated in a socket within the bell and forced down by an annular ring which is driven into place by screwing the gland into the bell. This gland contains a coarse thread which engages a similar thread within the bell and is screwed into position by the use of a heavy bar. This joint is of interest in that it represents a departure from the bolted construction which is generally encountered.

These two joints, in addition to the four originally described, have all been subjected to a detailed series of tests, including the following:

Tension and compression
Lateral deflection
Movement due to internal pressure
Effects of drip oil
Vibration
Gland pressure

The last two of these have not been described before and a brief description may be of interest here.

The same specimens as used for lateral deflection were also employed in conducting the vibration test. Vibration was secured by the application of compressed air to a foundry vibrator which was bolted to the pipe behind a bell by means of a heavy steel clamp. The specimen itself was securely bolted to two heavy I-beams which were in turn bolted to a heavy bed plate. Compressed air was stored in a tank which was connected to a small portable air compressor. The amplitude of vibration or the vertical distance through which the bell moved was measured by two dials placed above and below the pipe. An electrical circuit with a buzzer and headphone was used to determine when contact was made between the dial and the pipe. The joint was maintained under one hundred pounds internal pressure during the tests and leakage observations were made with soapsuds. Pressures ranging from 10 to 100 pounds were used on the vibrator and the corresponding amplitudes of vibration were measured. It was of interest to know that in spite of the severe conditions imposed on the joints by this test, they were practically unaffected throughout.

A fairly elaborate series of tests was undertaken to determine the effect of various gland pressures of mechanical joints. This was obtained by making two sets of tests. In the first the joints were made up in a normal manner and the total load on the gland measured for various pressures within the joint. In the second, definite loads were placed on the gland and the internal pressure then increased up to the point of leakage. Air was used within the joint up to 150 pounds and gasoline from 150 to 800.

Fig. 7 shows the general assembly of a specimen which was worked out to permit the conduct of these tests. It will be noted that the standard bolts are replaced by rods with threaded ends, the upper ends of which make contact with a plate placed against the head of the testing machine. Nuts are run over the threaded portions of these rods and with the specimen in position as shown pressure upon the gland may be secured by tightening up the nuts. In the same way the descent of the head also may be used to apply pressure. The spigot and bell piece in this instance is bolted together so that the joint is always held from blowing apart.

The results of the various tests which have been applied have been of decided interest and have shown that the question of the load or pressure upon the gland is of decided importance. The use of gasoline probably resulted in some swelling action of the gasket material which, no doubt, had an effect upon the results secured. It is planned in future tests to avoid the use of gasoline for this reason.

It has been apparent for some time that a considerable distortion of the material of a gasket in joints of this general type takes place when the load is applied and maintained as by a gland. For this reason some attention has been devoted to a means of observing the kind and extent of such distortion. This has been accomplished by making up a joint section for the reception of a given size and design of gasket. Loading is applied to the top of the gasket through a thrust block of a section similar to that of a gland by means of a testing machine to reproduce the effect of drawing up a gland. The section of the gasket in contact with a thick piece of plate glass is cross-hatched prior to the insertion. The position of the lines on the hatched end of the gasket when the load is applied thus gives an indication of the actual distortion which occurs. Figure 8 shows the device which has been constructed to obtain an indication of this behavior of gasket material. Figure 9 shows the deformation of a gasket under load.

In addition to the tests which have been described, it has been increasingly apparent for some time that the gasket material itself is worthy of special study. With that end in view plans are being made to carry out a rather detailed set of observations on different gasket materials under conditions which are made as standard as possible. In this way it is hoped to isolate certain facts which otherwise will not be readily apparent, and by a series of observations, to determine the properties which are most desirable for a gasket to possess to enable it to give the best performance under a given set of conditions.

Future Activities

It is felt that the research work on cast-iron bell and spigot joints has now been completed to the extent desired by the committee. As the next item of major importance, a detailed consideration of a proposed investigation of arc welding has received a large amount of attention. An advisory group was formed to assist the Laboratory in preparing a suitable manner of attack for this investigation. A meeting of this group was held early in January and it was decided that a detailed field study should be made in which the experience of a number of contractors and operators on arc welded lines would be obtained. From this it was proposed to develop a suitable method of investigation which would yield the greatest amount

(Continued on page 221)

Ten Meter Readers Run Up Perfect Scores

Standing, left to right—S. J. Chrense, R. Fisher, W. Heelan, H. Petersen, and J. McPadden
Seated, left to right—E. L. Bassford, R. F. Kane, and A. Jannicelli
Inserts, left—Robert Condren; right—O. A. Palmer

TEN meter readers of the Consolidated Gas Company of New York and affiliated gas companies have been rewarded with twenty-dollar gold pieces for completing the year 1931 with a perfect record of correct meter reading. A total of 576,794 gas meters were read by these men during the year.

Those rewarded were: W. J. Heelan, Steven Chrense, Hans Petersen, Rubin Fisher, Robert Kane, Alfred Janicelli, E. F. Bassford, and James McPadden of the Consolidated Gas Company; O. A. Palmer, of the Central Union Gas Company; and Robert Condren, of the Northern Union Gas Company.

Oscar H. Fogg, vice-president in charge of commercial relations, complimented the men on their achievement, and said that their record is considered typical of the care and attention required of meter readers in the Consolidated Gas system.

"The conditions under which this work is done are often far from ideal," Mr. Fogg stated. "In some cases along the water fronts, it is even necessary to use hip boots in order to get access to meters.

"In other cases, our men are forced to crawl over coal bins, to climb and descend all sorts of rickety stairs and ladders, and to reach almost inaccessible locations."

A. G. A. Members Should Apply for Munroe Award by June 30

EVERY member of the American Gas Association is entitled to make application for the Charles A. Munroe Award or to be nominated by his friends or company employing him. Applications should be made to Alexander Forward, managing director of the Association, on or before August 1, 1932, in behalf of individuals who are regarded as having made outstanding achievement toward the advancement in the gas industry.

This award will be presented at the Fourteenth Annual Convention of the Association, which takes place during October at Atlantic City.

Further details of the Munroe Award are contained in a booklet describing all A. G. A. Awards. Copies were sent to member companies sometime ago, but additional copies may be had upon application to the American Gas Association, 420 Lexington Avenue, New York, N. Y.

Brazil Experiments With "Coffee-Gas"

The use of low-grade coffee for making gas and by-products is proving a commercial success at the gasworks at Nictheroy and Santos, Brazil, government officials agree. Coffee in Brazil, just now, is cheaper than coal, for 3,000,000 sacks of it have been burned in the open air or dumped at sea in recent months. The discovery that the burning coffee can be used for gas-making, therefore, brings a clear gain. The coffee as used in making of gas was ground and made into bricks with a tar binding. After the experiments got under way, the tar used was a by-product of the coffee itself.

The gas operating companies in Brazil will experiment to see the effects on meters.

Dr. Drinker Advocates Use of Sylvester Method

Editor, A. G. A. MONTHLY:

Dear Sir—We are frequently asked what shall be done if a woman who is in the later stages of "pregnancy" requires artificial respiration. I have referred this question to Dr. Frederick C. Irving, Professor of Obstetrics in the Harvard Medical School. He informs me that when artificial respiration is required in the Boston Lying-In Hospital they use the Sylvester Method. In this method the patient lies upon her back, the arms are brought to full extension above her head and made to touch the floor. They are then flexed and brought down upon the chest by the operator and a slight amount of pressure is applied. Inspiration occurs when the arms are brought above the head since this obviously increases the size of the chest. Expiration is due in the main to bringing the flexed arms down and across the chest, and to a very slight degree to the final pressure. The pressure must not be great, as injury can be done.

I may say that at the present time a number of companies mention this situation in their regular training and give a brief demonstration of the Sylvester Method. Owing to the fact that the whole situation is somewhat arresting, it has been my experience that classes in resuscitation remember the Sylvester Method about as well as they do the Schafer Method which they have, of course, been taught in great detail. It requires little time to add this instruction and I do not think it is very confusing.

In my experience it is also occasionally necessary to use the Sylvester Method in individuals who have recently had a surgical operation on the abdomen.

(Signed) CECIL K. DRINKER, M.D.
Harvard University,
School of Public Health.

Boston, Mass., March 29, 1932.

BOOK REVIEWS

Engineering Handbook for Building Heating by Gas. 6¾ x 3¾. 90 pp. 39 tables. Loose leaf. Pub. by New Jersey Gas Assn. $2.00 with binder.

The Industrial and House Heating Committee of the New Jersey Gas Association, H. P. Morehouse, chairman, recognizing the rapid changes being made in gas house heating practice, felt that there was a need for an engineering manual which would be complete enough to enable the salesman to figure practically all jobs in the field, and yet so compact that it could be easily carried around in his pocket.

In order to fill this need, the loose leaf *Handbook for Building Heating by Gas* has been prepared. It includes the principal data tables and charts which are necessary to figure the bulk of gas heating installations. With the loose leaf type of book, additions and changes can be readily made to meet the progress of the industry.

Although many of the loose leaf pages are condensed from existing manuals, they have the advantage of presenting the most needed information in compact form. Among the most useful data given are fairly complete tables of heat emission from various kinds of standing radiation. It would be valuable if an early issue of additional material were to include data on the newer types of concealed and copper fin radiation. A complete degree day table for various bases and for distribution by months is given for the more important cities throughout New Jersey.

This little booklet is recommended to all house heating field workers because of its compact format and the condensed information which it contains. It will certainly prove a valuable addition to the working tools of the house heating men.

C. GEORGE SEGELER,
Industrial Engineer.

Report on W. Va. Geology.

A detailed report on Randolph County, West Virginia, by David B. Reger, containing 989 pages plus xxiv pages of introductory matter; illustrated with 74 halftone plates and 30 zinc etchings in the text, accompanied by a separate case of topographic and geologic maps, has been issued by the West Virginia Geological Survey, Morgantown, W. Va. It describes the geology and mineral resources of the largest county in the State. The new Cheat and Rich Mountain Coal Fields are described in detail as are also the other coal fields of the county, including chemical analyses, tests of fusing point of ash, sections, etc. Other mineral resources described are limestone, clay, building stone, glass-sand, and road material, with discussion of waterpower resources, stream gauging records. Chapters of paleobotany and paleontology will be of particular interest to those engaged in the science of geology. The price of the volume and case of maps is $3. Extra copies of the geologic map, $1, and of the topographic map, $.75. Copies may be obtained from the West Virginia Geological Survey, James D. Sisler, State Geologist, Box 879, Morgantown, W. Va.

Appeals To Gas Companies For Engineering Scholarships

THE fifth class of technically trained gas engineers, of whom there are seven, will be graduated from The Johns Hopkins University, Baltimore, Md., next month, according to announcement made by Professor Wilbert J. Huff.

Johns Hopkins now is making an appeal urging gas companies to establish scholarships in the Hopkins gas engineering course, in order that the student ranks, depleted by graduates, may be filled in the fall of 1932.

Scholarships usually are based upon an expenditure of $450 per year, which covers the cost of tuition, books and incidentals.

Those who will graduate next month are as follows:

George W. Armstrong, Jr., of New York. During summer periods he has been employed by the Consolidated Gas Company of New York as a laboratory assistant, and engineer's assistant in the Distribution Department.

David Moore Barrett, of Buffalo, New York. During the summer months he has been employed as a rodman, engineering corps, The Lehigh Valley Railroad Company, Sayre, Pa.; meter reader and fitter's helper, Athens-Sayre Gas Company; cadet engineer, Distribution Department, New York and Richmond Gas Company, Staten Island, New York; laboratory assistant, Appliance Testing Laboratory, Consolidated Gas, Electric Light and Power Company of Baltimore.

Donald Stuart Bittinger, of Washington, D. C. During the summer periods he has been employed as material clerk and timekeeper, Washington Railway and Electric Company; deck attendant, Library of Congress; field assistant, United States General Land Office, and research assistant, American Gas Association.

Ronald Bower Brook, of Baltimore, Md. During the summer periods he has been employed by the Consolidated Gas Electric Light & Power Company of Baltimore as follows: Laboratory assistant in gas appliance laboratory; junior technical assistant to superintendent of gas manufacture with special work in oil-gas purification and high-pressure distribution; junior technical assistant to superintendent of gas manufacture with special work in gas purification and plant operation and maintenance.

James William Penney, of Pikesville, Md. During the summer months he has been employed by the White Motor Truck Company and the Bethlehem Steel Company as a chemist.

Marlow Perry, of Washington, D. C. During the summer periods he has been employed as laboratory assistant and draftsman by the Washington Gas Light Company.

Roberts Earle Watts, Princeton, Indiana. During the summer periods he has been employed as rodman and transitman in consulting engineer's field party, Vincennes, Indiana; draftsman in Atlanta Gas Light Company, Atlanta, Georgia; assistant engineer in high pressure main gang, Central Indiana Gas Company, Muncie, Indiana; assistant chemist in plant laboratory, Consolidated Gas Electric Light and Power Company of Baltimore.

Information concerning these graduates may be addressed to the individual graduates or to Dr. Huff, Johns Hopkins University, Baltimore, Md.

In a bulletin issued by the Consolidated Gas Electric Light and Power Company of Baltimore, the following paragraph is noted:

"It is exceedingly important to the gas industry that the leaders as well as the companies themselves should arrange for additional scholarships and otherwise promote the entrance of young men into the Gas Engineering Course, in order to replace those leaving the University through graduation, and thus contribute to the further development of the industry by insuring a future supply of technically trained personnel."

To Hold Cooking Sales School at Boston

UNDER the auspices of the New England Gas Association, the first commercial cooking by gas sales school will be held at the Massachusetts Institute of Technology, Boston, Mass., from June 20 to 24.

The morning sessions will be given

Study of Economics Of House Heating Load*

By R. A. Ransom

H. L. Doherty & Co., New York, N. Y.

IN the past discussions of the house heating load have been very largely concerned with the customer. In view of this and the increasing availability of gas at low annual daily load factors, a study concerned entirely with the gas distributing company would seem to be in order. This paper summarizes such a study which was an attempt to determine the cost of distributing house heating gas under a particular set of conditions.

Some of these costs will vary with the type and extent of the distribution system, the rate at which gas is sold, the climate and other factors of lesser importance. Because of the large amount of data that would be required, there is no hesitation in admitting that a correlation between all of these factors and the costs has not been established. However, after a study of a group of natural gas distributing companies, which operate in the central and south central part of the country, a set of average costs has been obtained which, it is felt, indicates what might be expected under these conditions.

The cost of distributing this gas expressed as so much per M cu.ft. would seem to have more significance than a cost per customer or a cost per unit of demand. However, costs are usually thought of as consisting of customer costs, demand costs, and commodity costs, but these may readily be converted to so much per M cu.ft. once the sales per customer and the load characteristics have been determined.

Average Customer

The sales per customer are affected so much by the climate and the house heating customer saturation that these conditions should be stated. The customer saturation is indirectly related to the rate and in the group studied the rate per B.t.u. for gas was 1¼ to 1½ times the rate per B.t.u. for fuel oil and 1¾ to 2¼ times the rate per B.t.u. for solid fuels such as coal or coke. Under these conditions it has been found that 15% to 20% of the domestic customers use gas for house heating. When this customer saturation is reached an average installation uses 150 M cu.ft. of 1000 B.t.u. per cubic foot natural gas during a year having a degree day deficiency of 5000 degree days. This same customer will have a peak hour demand of about 130 cu.ft.

Load Characteristics

As indicated by the consumption and demand of the average customer the annual hourly load factor is approximately 13%. This load factor applies to the particular locality under consideration and it is expected that it would be higher for areas farther north.

Measurements of the diversity factor of house heating demands made on a small number of customers usually indicate a diversity factor of about 1.5. Studies of load factor trends on whole systems as the house heating load builds up indicates that the load factor of the added business is approximately 20%. This tends to confirm the measurements made on a small number of customers to the effect that a diversity factor of 1.5 may be expected. It follows that the effect on the system demand of an average customer will be 130 ÷ 1.5 or an 87 cu.ft. demand. Thus the additional investment for additional distribution system capacity need be made for only the 87 cu.ft. demand.

Added Investment

It is rather difficult to determine from an analysis of distribution construction expenditures just how much was spent because of increases in house heating demands and how much was spent because of increases in demands of other classes of business.

Since the addition of the house heating demand to the present demand of existing customers does not require additional feet of distributing mains, the effect of the added demand is to increase the load density. From this it would seem that the relation of investment to load density would indicate the cost of added capacity for the house heating demand.

In order to make distribution investments comparable valuations were made of each system by applying to the system inventory the unit costs developed by R. G. Griswold and included in his paper on distribution design which was presented before the 1922 Convention of the A. G. A.

Using the peak hour demands on the system, the valuation mentioned, and the feet of distributing main in the system, the "Investment per Foot of Main," the "Demand per Foot of Main" and the "Per Cent of Mains 3 Inches and Smaller" were computed for each system. On Diagram 1 the "Investment per Foot of Main" and the "Demand per Foot of Main" are plotted for each system with the "Per Cent of Mains 3 Inches and Smaller" indicated by a number adjacent to the point. As an aid to interpreting these data there is shown on the diagram two curves for systems in which the minimum distributor sizes were 2" and 4". These data were taken from the paper by Griswold which was mentioned before. The slope of these curves illustrates very well the general rule that the larger the distributor mains in use the less will be the cost to add capacity for increases in load density. However, it is seldom that a system is constructed entirely of 2" or 4" distributors. If the largest distributors in use are 4" it is likely that the point representing an actual system will fall somewhere between these two curves depending on the average size of the mains in use. If the use

* Presented before Ninth Annual Distribution Conference, American Gas Association, Tutwiler Hotel, Birmingham, Ala.

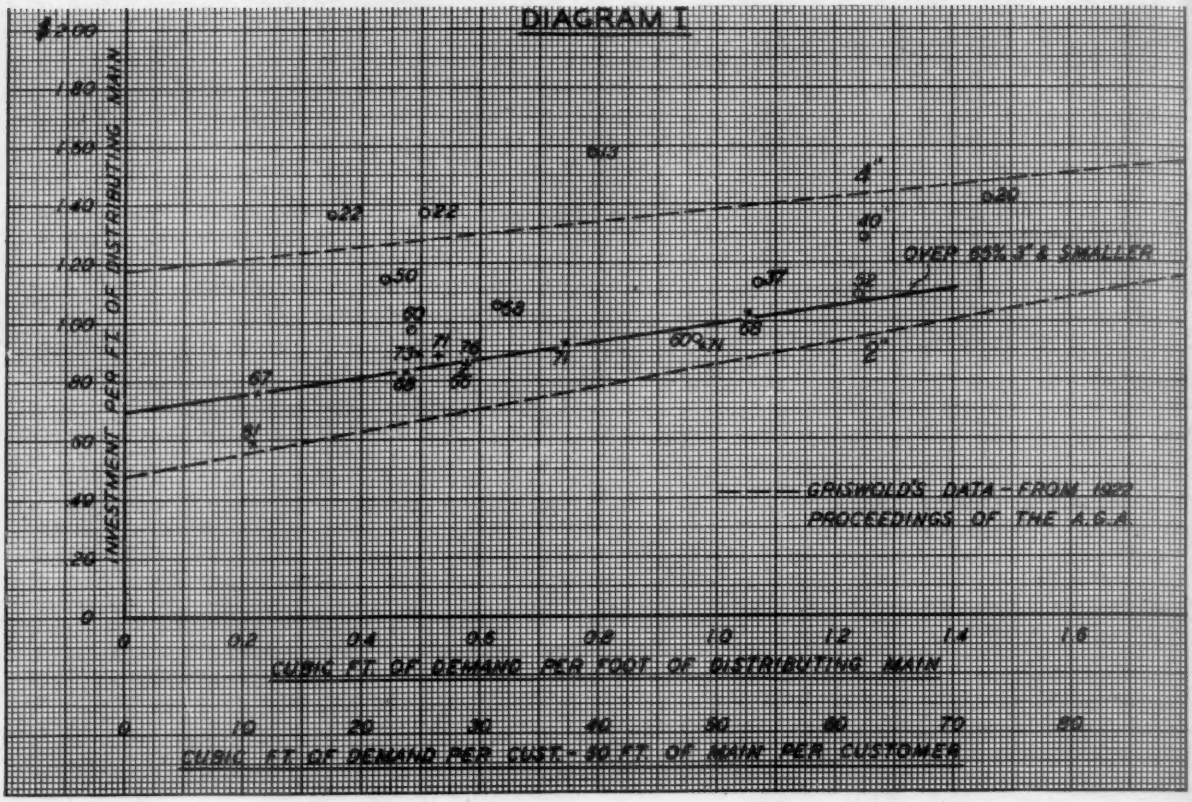


DIAGRAM I
INVESTMENT PER FT. OF DISTRIBUTING MAIN
OVER 65% 3" & SMALLER
GRISWOLD'S DATA - FROM 1922 PROCEEDINGS OF THE A.G.A.
CUBIC FT. OF DEMAND PER FOOT OF DISTRIBUTING MAIN
CUBIC FT. OF DEMAND PER CUST. - 30 FT. OF MAIN PER CUSTOMER

of distributors larger than 4" is infrequent the "Per Cent of Mains 3 Inches and Smaller" will indicate sufficiently well the average main size, and examination of Diagram I will reveal that in general those systems having the highest "Per Cent of Mains 3 Inches and Smaller" are those nearest the 2" distributor curves. Then, if sufficient data were available, a series of curves could be drawn between the 2" and 4" distributor curves, one for each "Per Cent of Mains 3 Inches and Smaller." The data on systems over 65% seems to justify the curve shown and the cost of adding capacity as indicated by this curve has been used in the calculation of added investment. It is felt that this is about as high as will be met with in actual practice. Of course, these costs are based on a set of standard unit costs and if local construction costs are higher or lower than these unit figures, the cost of adding capacity should be corrected accordingly.

The costs of adding capacity as computed from the curves are:

Curve	*$ Per Cu.ft.*
2" Distributors	.36
Systems having over 65% of mains 3" and smaller	.30
4" Distributors	.21

The added investment as shown in Table I is based on an 87 cu.ft. demand at $.30 per cu.ft. or $26.

In most cases existing services have been found to be adequate.

Service regulators for each installation increases the investment $6 per customer.

Holder investments have not been increased since load variations are seasonal instead of hourly and because of the lower relative cost of providing for added demands with added production and transportation equipment.

Working capital must be increased more than for the other classes of business since it is not unusual for the house heating customer to use 30% of the winter fuel requirements in one month. Where gas is purchased at $.40 per M cu.ft., $20 additional working capital should be sufficient.

The cost of atttaching business has varied widely and, of course, it will vary with business conditions, but over a period of several years this cost has averaged about $25 per customer.

This completes the list of investment items, which as Table I indicates, total $82 per customer.

Expenses

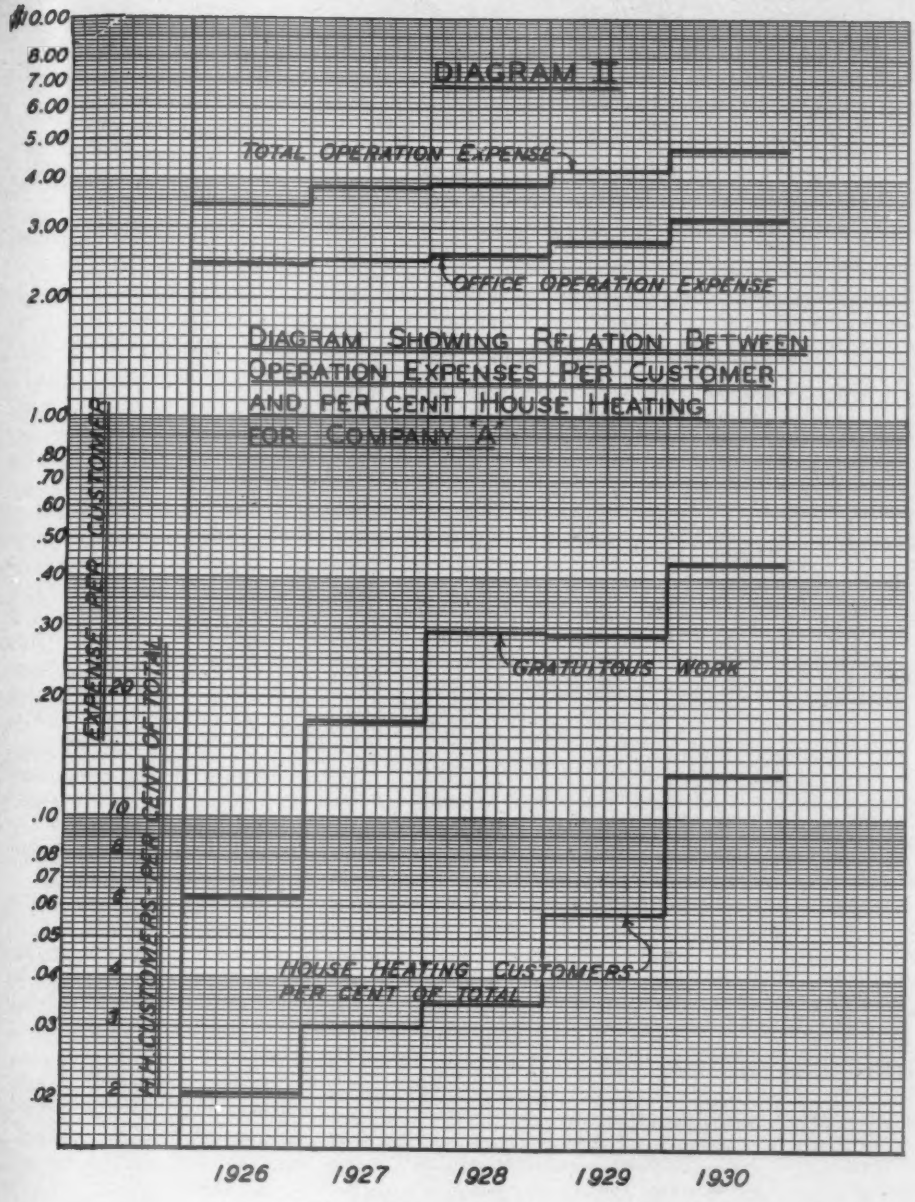
METHODS OF ANALYSIS

Because these companies do not classify their expenditures according to the classes of business for which they are made, the added expense due to the addition of another class of business must be determined by indirect methods. The methods used are:

1. Obtaining a correlation between the changes in each account and the changes in the number of house heating customers.

2. Examining all expenditures and estimating the proportion of each that is caused by the house heating business.

3. Having a knowledge of the revenue received and the cost of the gas sold, comparisons were made between changes in operation income over a period in which substantial amounts of house heating business were added and when other classes of business were relatively stable.



4. Comparing the per customer expenses of separate companies under very nearly similar conditions except that one company has a large house heating business while the other company has very little.

In order to guard against the possibility of error that exists in these methods at least two methods should be used, one as a check against the other.

The average expenses per customer and per M cu.ft. as found for the conditions stated are outlined in Table I.

Operation expense includes the added expense due to servicing house heating installations, added office expense in handling complaints and records, and usually some added expense in the distribution engineer's office. Servicing accounts for the greater part of this expense. Diagram II shows for one of the companies a correlation between the operation expenses and the changes in house heating customers as outlined in method number one.

Maintenance has been included at 1% of the added physical property.

Taxes have averaged 2% of the value of the added property after special taxes such as those based on gross revenue or income are excluded.

Other General Expense includes added administration expense, added insurance, etc. As indicated, normally these items are quite small.

Unaccounted-for gas may increase as a result of:

1. Distribution of gas at higher pressures.
2. Construction of additional feeder and transmission mains.
3. Average temperature of gas passing through customer meter being lower since all house heating gas is used in cold weather.

The effect of these items will vary so much that averages are of little value. However, the item is one that should be included. It is estimated at 5% of the sales.

Interest on the expenditure of $82 per customer at 8% is included.

For the purpose of this study retirement expense on physical property is included at 2%.

House heating customers will be lost because of their moving from the city, deaths, changes in finances, and for other reasons ranging from fear to superstition. Statistics on this rate of loss of customers are available only for periods of less than five years but these indicate an annual loss of from 2½% to 3½% of the customers. It is estimated that the average length of time a house heating customer "stays placed" on the lines is 16 years. The retirement of the cost of attaching business has been computed on a sixteen-year 6% sinking fund rate.

It should be remembered that this cost of distributing house heating gas of about 13¢ per M cu.ft. applies only under the particular conditions described and includes only incremental costs. However, it should not be particularly difficult to determine the effect of minor changes from these conditions and to make changes accordingly. Also, further study of the data on distribution systems as presented on Diagram I, and particularly those systems having high load densities, should show the distribution engineer that the expenditures necessary because of the added demands are not large.

TABLE I

Cost of Distributing House Heating Gas

House Heating Customer Saturation	15%-20%
Maximum Demand, Individual Customer	130 cu.ft.
Sales per Customer	150 M cu.ft.
Diversity Factor	1.5
Degree Days	5000

INVESTMENT	*Per Average Customer*
Distribution Mains	$26.00
Service Regulators	6.00
Meters	5.00
Total Physical Property	$37.00
Cost of Attaching Business	25.00
Working Capital	20.00
Total Investment	$82.00

EXPENSES	*Per Customer*	*Per M Cu.Ft.*
Operation	$5.00	3.33¢
Maintenance @ 1%	.37	0.25¢
Taxes @ 2%	.74	0.49¢
Other General Expenses	1.00	0.67¢
Unaccounted-for Gas, 5% @ $.40	3.00	2.00¢
Total Operating	$10.11	6.74¢
Interest @ 8%	6.56	4.38¢
Retirement Expense:		
Property @ 2%	.74	.49¢
Cost of Att. Bus. 16 yr. 6% S. F.	.98	.65¢
Total Fixed	$ 8.28	5.52¢
Total Expense	18.39	12.26¢

New Absorption Material for Gas Operated Summer Air Conditioning

FOLLOWING the pioneer research and development work of the American Gas Association Committee on Industrial Gas Research in perfecting a theory, technique and practical equipment for air conditioning dwellings in summer time with gas heat energy and the forces of capillary attraction, several new chemical compounds have been advanced as being suitable for use in this connection. The original adsorption material "Silica Gel" which was used in developing the new technique for summer air conditioning is now used in a number of commercial installations and was used in field tests in residences last summer. Other residental field tests will be conducted this summer.

Among the new materials is one called "lamisilite" which has been extensively tested by Robert G. Guthrie, chief metallurgist, and Dr. Oscar J. Wilbur, research chemist, of The Peoples Gas Light and Coke Company, Chicago, Ill.

Lamisilite, it was explained by Mr. Guthrie, has the property of removing moisture from the air much more rapidly and thoroughly than other compounds now available for this purpose. It can be produced at low cost, and a smaller amount of it, which will make possible a reduction in size of air conditioning installations, will do the same amount of work as much larger installations of the materials now in use.

"The old expression 'It's not the heat, it's the humidity' is founded on fact," said Mr. Guthrie in announcing the discovery. "The most successful and healthful air cooling and conditioning devices in use today are those which remove excess moisture from the air in addition to lowering the temperature. Warm, moist air, laden with dust and obnoxious odors, is drawn through a fine spray of water, where it is washed and cooled, and then passed over a bed of lamisilite, which delivers it cooled, dry, and odorless. The lamisilite is easily dried out, after it has adsorbed moisture, with an automatically controlled gas flame.

"It will be possible, with a small air conditioning unit, designed to serve only one room in a house or apartment, to relieve and often cure sufferers from asthma and hay fever by insuring them a full night of restful sleep in an atmosphere free from dust and bacteria," Mr. Guthrie stated. "The cost will be about 2¼ cents per hour for operation of the unit, which can be cheaply manufactured as air conditioning becomes a necessity instead of a luxury."

Mr. Guthrie emphasized the fact that merely cooling the air is not productive of real comfort. "It has long been known that the human body, under proper conditions of humidity, is the best of all automatic refrigerators, as the pores in the skin rapidly evaporate moisture, thereby lowering the skin temperature and keeping us comfortable," he said. "We can be perfectly comfortable at high temperatures if the air is dry enough to permit the pores in the skin to evaporate moisture."

People generally feel better and have more energy during spring and fall than at any other time of the year because the atmosphere is then properly balanced as to temperature and humidity, according to Mr. Guthrie. If proper air conditions can be maintained the year 'round, he sees no reason why that "spring-time feeling" should not continue twelve months in the year.

Public Utilities In the Changing Order*

By R. W. Gallagher

President,
American Gas Association

I AM pleased to be here where we can exchange helpful thoughts and perhaps add something to our useful knowledge of a most vitally essential public service.

It is natural, and necessary, that we view the public utility business from the standpoint of changed and still uncertain conditions in this country. I think it is always the duty of every business to look down deeply into its economic structure. This duty, in critical times, is dangerous to avoid.

The utility company has peculiarities of relationship to society which in the last two years or so have marked it for particular study.

The structure under any industry is the customer which it serves, and in turn industry supports the community. The welfare of any community and the ability of industry to support and be supported by the community are now fully recognized as so woven together that if one fails, the other fails also, and both go down together. Each depends upon the other.

It is the mutual nature of the responsibilities, running both ways, in the relations between the community and industry, that is most clearly expressed in the public utility.

The present depression has given all of us a better knowledge than we ever had before. We have learned to appraise our industry in terms of its economic relationship to the people we serve.

The unique industrial and economic principle which is the distinctive basis of the public utility is measured by our ability to properly handle our relationship with our customers.

Times like these are the acid test, and the public is discovering that its utility companies, in general, have shown more stability, have been capable of more dependence, than many other industries in their communities.

And by dependence in this respect I mean the dependence which enables a family to eat, and keep its children in school, and pay its bills, and help maintain society generally.

I am not boasting of the success with which we have met these hard times. Their storms have wrecked some utility companies and have damaged all of them. Utility companies are subject to all the adversities. Utility employees have felt the pinch of wage reductions, to staggered employment and doubling up to spread the work around as far as it would go. Earnings have in many cases dropped to zero and below. But, speaking generally, the utility industry has stood up well.

Now, if this were something casual, or accidental, we might all be proud of it, and maybe brag a little about good management and let it go at that. But this gratifying result arises from the peculiar characteristic of public utilities which distinguishes it from many other industries.

The peculiar feature of the public utility company is the close and intimate relationship which it has with the public it serves.

Imperfect as it is, this stability of a public utility industry is at once its strength and its weakness—for the dependence of a public utility may be exploited by politicians for votes; its dependability may be exploited by careless finance agencies for promotion; and its intimate relations with a large number of customers or patrons may be exploited by harrassed governments for quick tax cash. We well know, and must combat, these perils, which are the penalty we pay for the recognition that our business is essential to the community.

The very fact that a utility is essential has brought about an exchange of privileges by which the utility is relieved of certain wasteful competitive conditions, and in return, surrenders itself to certain regulatory restrictions. The public gains in more and better service, and lower rates through economical operation of a public service by itself agreeing to regulation of competition. The utility company gains, if not an assurance of, at least the right to stipulated earnings if it can get them, the state pledging its cooperation to that end. If the state has been reluctant in giving more than the strict and narrow letter of that obligatory cooperation, possibly the utilities are somewhat to blame.

We all know, I think, that years ago there was a tendency on the part of some public utility operating men to oppose many of the regulatory actions which were devised from time to time for their business. Certainly the mutual character of regulation both of and for the public utility has never been fully realized by either party.

I think nobody will deny that in a country as big as ours, and with so many different sets of forces at play in it, there could not help being abuses of this regulatory spirit and not a few measures of doubtful wisdom. But the important fact is that now we can look back over a considerable period of years, during which the regulatory principle has had a chance to work itself out. Few, indeed, will fail or refuse to recognize the basic correctness of the principle, regardless of an occasional faulty application of it.

The only sure method in dealing with any problem is to understand it; as they say in the schools, "a problem well stated is half solved." I cannot avoid the conclusion that many, if not most, of the difficulties which beset the American nation and American business can be traced to faulty understanding or imperfectly applied fundamental principles. It is also my belief that the utilities' side is beginning to be better understood.

It will also have to be admitted, I think, in justice and fairness to our

* Address before Missouri Association of Public Utilities, Excelsior Springs, April 28, 1932.

regulatory friends that there has not always been the willing cooperation on the part of all utilities with the regulatory spirit that there might have been, and now that I have been fair this way with the forces of regulation, I think it is also only fair to the utilities' side of the question to state, which I do without any embarrassment whatever, that the regulatory spirit has, in its turn, often been either based on pure political expediency, or been even downright personally hostile.

But the two points on which we should fix our attention are: first, that this is a time to look carefully at the pivotal points of our general economic structure, and, second, that there is a definite and modernly correct philosophy in the public utility method of organized, mutual dependence between the public and a business which serves it.

By the terms of the contract between the utility and the people, through the state as their joint representative, mutual obligations are assumed, and mutual benefits conferred. I suppose any such relationship would result in more or less strain, and those with which we are familiar are no exception.

In general, though, we can see, I believe, that if general economic disturbances of the past few years have been less destructive in the utility field than they have along certain other of the great industrial lines in this country, it must be credited to something different in their nature, or in their relations with their patrons. I mean here, of course, something deeply different than customer good-will, as important as that is in its place.

The difference between a public utility and the usual form of business or industrial setup is all summed up in the very name by which our business is designated—a public utility. I think that continuous familiarity with that label should not dull in us, as public utility operators, the tremendous significance of its meaning. The public utility is a very advanced form of business and industrial thought. It stands for socialized industry in a very definite and precise and practical manner. It means that a concrete mechanical organization exists whereby the mutual dependence of a community upon a basic industry and the dependence of that industry upon a community can be effectively maintained.

Mind you, I do not say that it works perfectly, but it works so well that we all know the principle is at least approximately the right one.

A utility company is designated by the state to conduct a needed or a necessary service to the public, and is induced to surrender its own faculties of warring on its business fellows by the assurance by the state that it will be allowed a fair profit within the public service field allocated to it, and reserved under state regulation for it.

The utility company, as a matter of course, surrenders much of its independence as the price it pays for the privileges which the state deems it advisable to entrust to it. In most states it surrenders many usual commercial advantages in return for exclusive territory in which to market its commodity or sell its service.

Viewed from the standards which have been applicable to investors in other industries, namely, that of large returns during times of abundance, the utility is indeed an underprivileged business undertaking.

The chief aim of the regulation to which a utility submits in return for a questionable, but desirable monopoly, is to hold its profits down to a point which is generally agreed upon as reasonable. I submit to you gentlemen that the obligations which run mutually between the utility and the public, through the state, also demand that the utility's earnings be held up to a reasonable and fair point, as well as down to a point.

But, without any desire to complain, and with every respect in the world for our political friends through whom these mutual obligations between utility and public are consummated, I think it is a fact which our experience will attest, that the obligation downward is more fully and emphatically recognized than the compensatory obligation upward.

In other words, politically-minded people have a tremendous leverage on the utility. With this they can procure political preferment, whereas the utility is without any counter powers except an appeal to the people direct, or the cumbersome and mutually irritating processes of litigation.

And now another heavy price is being exacted of the utility due to its peculiar position which is the price of its comparative stability, namely, unwise and discriminatory taxation.

The fact is that the utility these days has the same difficulty in making both ends meet—when it does make ends meet—that any business has in these extraordinary times. But the utilities have come nearer than almost any other industry to keeping a fair sort of employment support under the families depending upon them for a livelihood. It hasn't been normal employment—we've had to spread out pretty thin what we had, to make it go around, but at least we have not dumped into the streets, or upon the community, whole communities of families. We have carried our losses ourselves, and we have borne well the burden of community support which economists now recognize as a major purpose of an industry.

We readily admit that we have been able to carry on under adverse conditions up to the present time by reason of the peculiar conditions surrounding public utilities service, but the very fact that we have been able so to do tempts the tax hunters, for whom, of course, we all have certain sympathy. They are having their troubles, too, but there is a limit to the burdens which we can safely carry.

Against discriminatory taxes we all protest vigorously and against excessive taxes we are in the same rebellion as every business, every home owner, every farmer in the country. We all know how taxes in general, and special utility taxes in particular, work out in higher rates, and these work out in lessened consumption, or sales, and this, in its turn, works out again in higher rates, which in their turn, etc., which brings us to the point that if we are to avoid the back-breaking load in the form of additional taxes, we must help the legislators by having the public thoroughly understand the situation which is confronting us; bring to them the knowledge that additional expenses only mean higher rates and that we finally come to the point where, as stated before, additional expenses, whether they be in the form of taxes or otherwise, increase the rates to a point where the utility can

(Continued on page 214)

A. G. A. Affiliated Associations

How They Started and How They Have Grown

By G. W. ALLEN

CANADIAN GAS ASSOCIATION

Herewith is the fifth of a series of articles appearing in the "A. G. A. Monthly" giving an outline of the history and accomplishments of State and district utility associations which are affiliated with the American Gas Association. Work of these associations has proved of great value and a distinct contribution to the advancement of the gas industry. It is believed that this series will focus yet greater attention on the splendid records of these organizations.

WHEN its annual convention takes place at Winnipeg, June 9 and 10, the Canadian Gas Association will round out twenty-five years of active service. Plans have been made to observe the event with an appropriate celebration.

Three men—H. H. Powell, then manager and owner of the Brantford, Ontario, Gas Company; the late A. W. Moore, former manager of the Woodstock Gas Company, and first secretary-treasurer of the Association; and John Keillor, then manager of the Hamilton Gas Company, today gas engineer of the British Columbia Electric Power and Gas Co., Ltd., Vancouver—met about October 1, 1907, and agreed to form the Association. Their efforts met with success, which materialized on November 21, 1907, when a group of representative gas men assembled at the King Edward Hotel, Toronto. Here the Canadian Gas Association was formally launched and officers elected.

Hugh McNair, president of the Canadian Gas Association

In its issue of December 9, 1907, the *American Gas Light Journal* had this to say about that first meeting:

"We are indebted to a special correspondent for the following interesting budget: A largely attended meeting of the representatives of Canadian gas companies was held in the King Edward Hotel, Toronto, Thursday, November 21, for the purpose of forming a Canadian Gas Association. It has been felt for a long time that an Association of purely Canadian gas companies would be a great benefit to the industry in this country, and . . . it was decided to try to bring these different ones together so as to foster friendly intercourse and promote commercial interests of members engaged in the business in the Dominion of Canada. The Hon. William Gibson, president of the Hamilton Gas Company, was called to the chair, and, in a speech describing the object of the Association, impressed upon those present the necessity of having an Association with a membership representative of the whole gas industry in Canada. If the first meeting is any criterion of the success of the Association it will indeed be a grand one. As an initial meeting where so much preliminary work had to be dealt with and questions regarding organization thrashed out, it certainly gave great encouragement to the ones who had started the work. Letters were read from those unavoidably absent and their hearty cooperation in every instance was expressed. . . . On nominations being called for, the following officers were elected: President, Mr. H. H. Powell, Brantford; First Vice-President, Mr. J. S. Norris, Montreal; Second Vice-President, Mr. J.

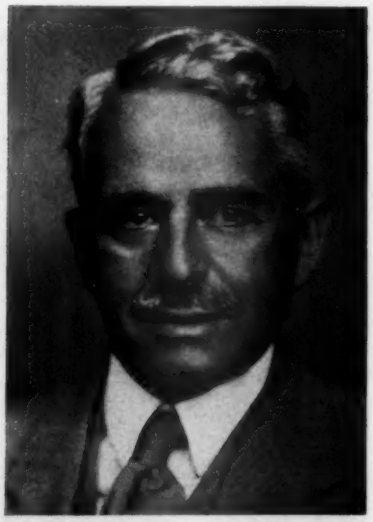
The late H. H. Powell, first president of the Canadian Gas Association

Keillor, Hamilton; Secretary and Treasurer, Mr. A. W. Moore; Executive Committee, Messrs. Charles Forbes, J. C. Hay, W. C. Kennedy, W. H. Pearson, Jr., and J. Philip. A very successful inaugural meeting was terminated in a hearty vote of thanks to the Chairman."

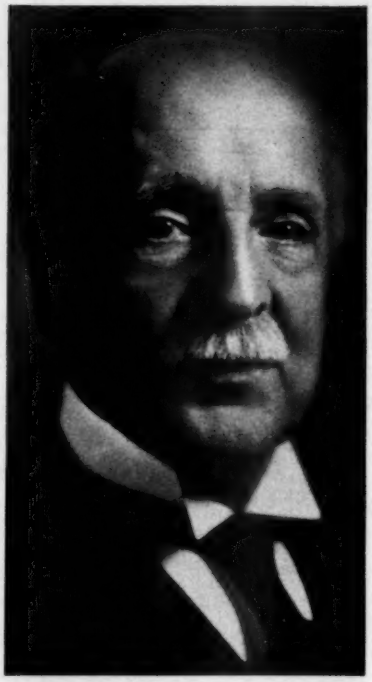
In December, 1907, an Executive Committee drew up a constitution and by-laws and this action was followed by the first annual convention of the Association, which is described as follows in the *Journal of Gas Lighting*, England, Vol. 103, July 21, 1908:

"In the *Journal* for the 24th of December last, the formation of the Canadian Gas Association was announced. The first annual meeting was held in the King Edward Hotel, Toronto, on the 26th ult., under the presidency of Mr. H. H. Powell, of Brantford, who was supported by the Vice-Presidents (Messrs. J. S. Norris and J. Keillor) and the members of the Executive Committee. There was an attendance of sixty—more than twice the number expected.

"The first business was the reading of the minutes of the organization meeting and the respective reports of the Committee and of the Secretary and Treasurer, Mr. A. W. Moore, who, owing to illness, was unable to be present. These having been disposed of, the Committee on Nominations presented their recommendations



J. B. McNary, Hamilton, Ontario, president of the Association's official journal, and a staunch supporter of the C. G. A. activities



Arthur Hewitt, for several years president of the Canadian Gas Association, also at this time vice-president of the American Gas Association, who has done much toward making the Canadian Association a success

for office-bearers for the ensuing year; and the following were duly elected:

"Honorary President, Mr. H. H. Powell, of Brantford.

"President, Mr. J. C. Hay, of Listowel.

"First Vice-President, Mr. J. S. Norris, of Montreal.

"Second Vice-President, Mr. W. H. Pearson, Jr., of Toronto.

"Treasurer and Secretary, Mr. A. W. Moore, of Woodstock.

"Executive Committee, Messrs. E. J. Philip, C. Forbes, J. Keillor, C. P. King, and P. S. Coates.

"The President then proceeded to deliver his Inaugural Address, in the course of which he dealt with several matters that are now occupying the attention of gas managers both in the Dominion and in the United States. An interesting paper on 'Coal Tar and Ammonia' was read by Mr. J. Keillor, of Hamilton. It led to a brisk discussion, which ended in a resolution recommending the executive officers of the Association to continue their efforts to prevail upon the Dominion Government to remove the duty on coal coming into Canada for gas-making purposes, and to put a duty on residual products. This brought the morning sitting to a close. In the mid-day interval, the members paid a visit to Hiawatha Island, to enjoy the hospitality of the second Vice-President, in the Royal Canadian Yacht Club.

"On the resumption of the proceedings in the afternoon, the first paper read was by Mr. W. H. Pearson, Jr. (whose father was, unfortunately, unable to be present), on 'Producer-Gas Fired Benches'; and it led to a good discussion. Mr. J. C. Forbes followed with one on 'Gas Appliances'; and he was succeeded by Mr. E. J. Philip, who discoursed on 'Producer Gas for Power Purposes.' While the author expressed an opinion in favor of producer-gas plants for driving engines of more than 50 hp., he was not at all enthusiastic about their utility for smaller motors. This view was shared by many of the speakers. A paper on 'Experiences with Canadian Coal' was read, in the absence of the author, by the Secretary *pro tem.* (Mr. F. Burnett); but it did not give rise to any discussion. The last item on the program was a contribution by

G. W. Allen, secretary-treasurer of the Canadian Gas Association, also director, Laboratory Approval Division, C. G. A., and editor of the Association's official publication

A typical Canadian Gas Association convention group

Mr. L. S. Bigelow, on 'The Commercial Side of the Industry.'

"The evening was enjoyably spent at Scarboro' Beach. The visit was paid at the invitation of the Consumers' Gas Company and the Economical Gas Apparatus Construction Company, who were the hosts of the Association during the meeting. The next morning an inspection was made of the manufacturing station of the Company, where considerable interest was manifested in the plant (in the arrangement of which manual labor is to a large extent dispensed with), and subsequently of the new works, which are now approaching completion. They were designed by Mr. W. H. Pearson, Sr., and his staff of engineers, and have been constructed, under the supervision of Mr. W. H. Pearson, Jr., by Mr. G. A. Bronder. Thus ended a very successful and profitable meeting.

Among those present at this session was A. Gordon King, service engineer of the American Gas Association, formerly with the Consumers Gas Company, Toronto, and a charter member of the Canadian Gas Association.

From that beginning the Canadian Gas Association has grown into a national organization similar in character, though smaller, to the American Gas Association, having for its aims the same objectives and principles as the latter body. It has been successful in the promotion and advancement of scientific and practical knowledge relating to the construction and management of gas works and the manufacture, distribution and consumption of gas. It has firmly established and maintained a spirit of fraternity throughout the Canadian gas industry.

Because the Canadian association has lived up to its ideals it has been a strong factor in the advancement of the gas industry in Canada; today that industry has never been in a more encouraging position and the association itself has never been more prosperous in finances and number of members.

The association has had a succession of unusually interesting and instructive conventions, one of its most successful meetings being that held in Toronto in September, 1912, in conjunction with the Michigan Gas Association. Glen Chamberlain was president of the Michigan association at that time.

It is interesting to observe that the association has had only three permanent secretaries during its twenty-five years. These were: A. W. Moore of Woodstock, who was succeeded in 1910 by John Keillor and that office is filled today by George W. Allen, of Toronto, who, except for a few months, has held the position since 1916.

The Canadian association affiliated with the American Gas Association in March, 1919, and in January, 1927, entered into a mutual agreement to adopt the standards of appliance and equipment requirements in Canada as established in the United States by the A. G. A. Testing Laboratory. This arrangement has resulted in bringing about many improvements in the manufacture of safe and efficient appliances in Canada and has proved of much value to the industry in general. Incidentally, it has assisted the American body in bringing about continent-wide standards of practice in this connection. The Canadian association now has its own laboratory approval division under the direction of Mr. Allen and extends approval to manufacturers who meet the safety and performance requirements of the American Gas Association Laboratory. It issues a list of approved appliances every three months.

The Canadian association has representatives on each of the sections of the American Gas Association and Arthur Hewitt, of Toronto, a member of the Executive Committee, also is vice-president of the American Gas Association.

The association maintains a library and publishes an official organ—*Intercolonial Gas Journal of Canada,* which was established in 1908.

In the order of their appointment the following prominent Canadian gas men have served as president of their organization since its establishment a quarter of a century ago:

1907-1908—*H. H. Powell, president and manager, Brantford Gas Co., Brantford, Ontario.

1908-1909—*J. B. Hay, president, Listowel Gas Company, Listowel, Ontario.

1909-1910—J. S. Norris, manager and secretary-treasurer, Montreal Light, Heat & Power Company, Montreal, Que.

1910-1913—Arthur Hewitt, general manager, Consumers' Gas Co., of Toronto.

1913-1914—A. A. Dion, general manager, Ottawa Gas Company, Ottawa, Ont.

1914-1915—Howard Mann, engineer, Montreal Light, Heat & Power Company, Montreal, Que.

(Continued on page 212)

* Deceased.

Affiliated Association Activities

Mid-West Gas Association

W. E. Derwent

W. E. DERWENT, vice-president, Geo. D. Roper Corporation, Rockford, Ill., was elected president of the Mid-West Gas Association at its twenty-seventh annual convention held in St. Paul, Minnesota, April 11 to 13. Mr. Derwent succeeds John K. Swanson of Minneapolis.

Other officers elected were: R. L. Klar, Des Moines, first vice-president; C. T. Williams, Sioux City, second vice-president and R. B. Searing, Sioux City, re-elected as secretary-treasurer.

New members named to the executive council were: R. L. Schacht, Lincoln, Neb.; N. J. Roberts, Buffalo, N. Y.; S. D. Whiteman, Sioux Falls, S. D. and George Lynch, Fargo.

Canadian Gas Association

IT is said that "straws tell which way the wind blows," and if indications can be taken as straws, then the success of the twenty-fifth anniversary convention of the Canadian Gas Association to be held at the Fort Garry Hotel in Winnipeg, Manitoba, June 9 and 10, is assured. Word from as far east as Nova Scotia, and as far west as the Pacific assures the Winnipeg meeting of a real delegation of gas men next month, all of which is encouraging.

The Canadian Gas Association publicity campaign is also receiving its share of commendation, for hardly a week passes without some interesting item about the coming meeting reaching the desks of members and friends of the organization.

The Papers Committee is to be congratulated on the fine list of papers arranged to date, and, while the list is not quite complete, sufficient information is at hand to indicate that the program will be up to the usual high standard of excellence.

The tentative program lists the following timely subjects:

"Carbonization by Electricity," by Col. C. F. Hirshfeld, Chief of Research, Detroit Edison Co., Detroit, Mich.

"History of Gas Manufacture in Winnipeg," by Harry Dunderdale, Superintendent of Gas Production, Winnipeg Electric Co., Winnipeg, Manitoba.

"Sewage Methane Gas," by R. O. Wynne-Roberts, C.E., Toronto, Ont.

"A New Development in the Waterless Type of Gas Holder," by John L. Murray, Gas Engineer, Cumberland County Power & Light Co., Biddeford, Maine.

"The Use of Gas for the Ignition of Oil and Coal Fuels," by Roy Soderlind, Combustion Engineer, Ottawa Gas Company, Ottawa, Ontario.

"Making Calcium Carbide and Acetylene in Large Quantities at Shawinigan Falls, Quebec," by Nominee of the Shawinigan Chemicals, Limited, Shawinigan, Que.

"Belleville Gas Works," by R. O. Wynne-Roberts, C. E., Toronto.

"Gas Sales in Winnipeg," by F. W. Satchwill, Winnipeg Electric Company, Winnipeg, Manitoba.

"Gas Leaks and Supporting Mains Over Other Cuts," by D. O. Wing, Asst. Supt., Gas Distribution, Montreal Light, Heat & Power Con., Montreal, Que.

"Copper Service Pipes," by Nominee of the Mueller, Limited, Sarnia, Ontario.

An opportunity will be afforded delegates to inspect the large coking plant of the Winnipeg Electric Company. Other side trips will be available. The twenty-fifth anniversary dinner promises to be a unique function. Efforts are being made to interest gas men from the Mid-Western United States to attend the convention, and a large delegation is looked for from the Eastern States. Special fares on the certificate plan have been extended by almost all railroads. A part-way boat trip can also be arranged from Sarnia, Ontario, to Port Arthur, or from Port McNichol, Ontario, and Port Arthur. Transportation and reservation information can be secured from G. W. Allen, Secretary, Canadian Gas Association, 21 Astley Ave., Toronto, Ont.

Maryland Utilities Association

THE tenth annual meeting of The Maryland Utilities Association was held at the Lord Baltimore Hotel, Baltimore, Md., April 8, 1932, with a registration in excess of 300 members.

Since the Maryland Association is composed of electric, gas and transportation company members, the morning session was devoted to separate meetings of the three groups.

The program of the gas group, under

Convention Calendar

Southern Gas Association,
New Orleans, La.
May 3, 4 and 5, 1932.

National Fire Protection Association,
Atlantic City, N. J.
May 10 to 12, 1932.

American Gas Association,
Natural Gas Department,
Mayo Hotel,
Tulsa, Oklahoma.
May 9, 10 and 11, 1932.

Chamber of Commerce of United States,
San Francisco, Calif.
May 16 to 20, 1932.

A. G. A. Metropolitan Regional Gas Sales Conference,
Lake Mohonk Mountain House,
Lake Mohonk, N. Y.
May 24, 25 and 26, 1932.

Deutscher Verein von Gas-und Wasserfachmännern,
Essen, Germany.
May 30, 1932.

American Gas Association Executive Conference,
Traymore Hotel,
Atlantic City, N. J.
June 3 and 4, 1932.

National Electric Light Association,
Atlantic City, N. J.
June 5 to 10, 1932.

Institution of Gas Engineers,
General Meeting,
London, England.
June 7, 8 and 9, 1932.

Canadian Gas Association,
Fort Garry Hotel,
Winnipeg, Manitoba.
June 9 and 10, 1932.

Public Utilities Advertising Association,
New York, N. Y.
June 19 to 23, 1932.

Pacific Coast Gas Association,
Del Monte, Calif.,
August 24 to 26, 1932.

American Gas Association,
Atlantic City, N. J.
October 10 to 14, 1932.

Institution of Gas Engineers,
Annual Research Meeting,
London, England.
November 1 and 2, 1932.

the chairmanship of D. D. Ransdell, of the Washington Gas Light Company, opened with a talk on "Sales" by L. M. Holmes of Hagerstown, Md. Other speakers were T. B. Hopper of Washington, D. C., who delivered a remarkable paper on "The Use of Heavy Oil as an Enricher for Blue Gas, with Especial Reference to Final Enrichment with Natural Gas," and Seward Abbott of the Electrolux Sales, Inc., of Evansville, Ind., who spoke on the topic, "The Status of Gas Refrigeration."

An attractive and diversified program was offered at the general session held in the afternoon. T. E. Roach of the National Electric Power Co., of New York, N. Y., presented a comprehensive review of the trade and dealer relation problems in his address "Cooperation Between Utilities and Dealers in Retail Sales of Gas and Electric Appliances." "Research in Law" was the subject covered by Dr. W. W. Cook, Johns Hopkins University, in his paper "Law in the Spotlight" and Charles M. Ripley of the General Electric Co., Schenectady, N. Y., gave an entertaining, as well as enlightening, talk on "New Tools for the New Age."

The entertainment features of the meeting consisted of sightseeing trips and theatre parties for the ladies in the afternoon; and a dinner dance in the evening, those in attendance having the added pleasure of hearing inspirational addresses by David C. Winebrenner, III, Secretary of State of Maryland, and Howard W. Jackson, Mayor of Baltimore.

F. A. Mitchell, chairman, and the other members of the Program Committee are to be congratulated for providing such an informative schedule for a one-day session.

At the business meeting the following officers and directors were elected for the ensuing year: President, F. A. Mitchell, Eastern Shore Public Service Co., Salisbury, Md.; vice-president, W. A. Tobias, Hagerstown Light & Heat Co., Hagerstown, Md.; treasurer, G. P. Mangan, Potomac Electric Power Co., Washington, D. C., and secretary, D. E. Kinnear, United Railways & Electric Co., Baltimore, Md.

Directors—M. J. O'Connell, F. A. Alexander, R. F. Bonsal, Adrian Hughes, Jr., C. H. Leatham and R. H. Dalgleish.

Illinois Public Utilities Association

ON February 1, the Illinois Gas, Illinois State Electric, and Illinois Electric Railways associations ceased operation as separate organizations and are now being operated as the Illinois Public Utilities Association with headquarters at 617 Public Service Building, Springfield, Ill. The Executive Committee consists of A. B. Mackie, chairman; Marshall E. Sampsell, vice-chairman; J. R. Blackhall, secretary; G. W. Welsh, treasurer; Adam Gschwindt, J. E. Johnson, John G. Learned, R. B. MacDonald, B. J. Mullaney and G. A. Richardson.

New Jersey Gas Association

THE twenty-first annual convention of the New Jersey Gas Association was held at Newark, New Jersey, on Wednesday, March 30. The history, current trends and future progress of the gas industry were discussed in the presence of more than 500 delegates.

John D. Alden

The members of the Association were welcomed to Newark by the Mayor, Jerome T. Congleton, and by Thomas N. McCarter, president of Public Service Corporation.

Louis Stoecker, president of the association, in his opening address reviewed the committee activities during the year.

This was followed by an address by Alexander Forward, managing director of the American Gas Association who stressed the high standards of modern gas appliances.

Harry Ellis, of Public Service Electric and Gas Company, described to the association the problems encountered in laying two sixteen-inch gas mains under the Passaic River, thirty-eight feet below water level.

The home service activities of the Hartford Gas Company were discussed by Mrs. Arra Mixter.

The morning session was concluded with an address on customer relations by Morse DellPlain, president of the Northern Indiana Public Service Company. Mr. DellPlain effectively pointed out the relation between scientific merchandising and new business policies, including rate making, and customer good will.

The afternoon session was opened with an address on "Water Heater Promotion," by C. E. Bartlett, president of The Bartlett Company, in which he stressed the need for an adequate study of the water heating phase of the gas business.

A McCarter Medal was presented by the late A. J. Van Brunt to J. J. Margician, an employee of Public Service Electric and Gas Company, for reviving by the prone pressure method a householder overcome by gas.

H. P. Morehouse, chairman of the association's Industrial and House Heating Committee, told the members of a house heating sales engineers' manual prepared by his committee during the year.

Eugene D. Milener, industrial research representative of the American Gas Association, described the application of gas to ceramics and to air conditioning of domestic and commercial buildings. "The Operating Man's Interest in Sales Results" was the title of an address by G. E. Whitwell, vice-president of Philadelphia Electric Company. Mr. Whitwell forcefully discussed the interdependence of all departments of the gas company and particularly stressed the essentials of scientific salesmanship.

The afternoon session was concluded with an address by Dr. W. T. Read of Rutgers University, who described the progress made by the New Jersey Gas Association Fellowship for Gas Research at Rutgers University.

The following officers were elected for the 1932-33 Association Year:

President, J. D. Alden, Jersey Central Power and Light Company; first vice-president, F. A. Lydecker, Public Service Electric and Gas Company; second vice-president, E. J. Menerey, Peoples Gas Company; and secretary-treasurer, Herbert E. Cliff, Public Service Electric and Gas Company.

Southern Conference To Open May 3

THE fifth annual Southern Regional Sales Conference, jointly sponsored by the Southern Gas Association and the American Gas Association, will take place at the Hotel Monte Leone, New Orleans, May 3, 4 and 5. Conference sessions will take place each afternoon and prominent sales executives will give the benefit of their experience in promoting gas sales in domestic, commercial and industrial fields.

Below is the tentative program:

TUESDAY AFTERNOON, MAY 3, 1932
2:30 P.M.

Promoting Central Plant Heating, C. P. Balsam, Washington Gas Light Co., Washington, D. C.

Automatic Controls for Power Boilers, L. S. Regan, Webster Engineering Co., Tulsa, Okla.

Controls for House Heating Equipment, J. F. Orr, United Gas System, Houston, Texas.

WEDNESDAY AFTERNOON, MAY 4, 1932
2:30 P.M.

Selling Gas to Laundries, Louis Hill Hungate, Jr., Memphis Power & Light Co., Memphis, Tenn.

Selling Gas Water Heating to Apartments, W. A. Hudson, Birmingham Gas Co., Birmingham, Ala.

What's Ahead for Gas Refrigeration, R. F. Calloway, Faraday Refrigerator Corp., Dayton, Ohio.

THURSDAY AFTERNOON, MAY 5, 1932
2:30 P.M.

Burning Gas in Large Power Plants, H. R. Pearson, Dallas Power & Light Co., Dallas, Texas.

What Air Conditioning Will Mean to the Gas Industry, Eugene D. Milener, American Gas Association, New York, N. Y.

Symposium on Employee Sales Campaigns, E. G. Peabody, Baton Rouge Electric Co., Baton Rouge, La. C. E. Dougherty, Chattanooga Gas Co., Chattanooga, Tenn.

Commercial Section

SAMUEL INSULL, Jr. Chairman — J. W. WEST, Jr., Secretary — WALTER C. BECKJORD, Vice-Chairman

Ninth Metropolitan Regional Gas Sales Conference Opens May 24 at Lake Mohonk

PLANS and reservations should be made now to attend the Ninth Metropolitan Regional Gas Sales Conference which will open at 8 P.M., Eastern Standard Time, Tuesday, May 24 and close at Noon, Thursday, May 26.

The program, will be found full of important addresses by authoritative speakers and has been arranged for the two evening and two morning sessions. Afternoons will be left open for personal discussion of those present, or for recreation.

Hotel rates, special for the conference, will be as follows: American plan, room without bath, $7 per day per person; room with private bath $9; room with bath shared by two persons, $8 per day per person. To enjoy these reduced rates delegates are expected to arrive on or before Tuesday afternoon, May 24 and leave after Noon on Thursday, May 26.

Although the usual sports and recreation will be possible to all those in attendance no trophies are being arranged for the present year and there will be no registration fee.

For those who come by train, transportation is via New York Central Railroad to Poughkeepsie where autos, upon request, transfer guests from the station to Mohonk at a charge of $6 round trip. Delegates coming by train should arrive at Poughkeepsie not later than 4 P.M., Eastern Standard Time, Tuesday, May 24.

For those who come by auto, transportation from *Mountain Rest,* where guests' cars are stored, to Mohonk is 50 cents. Garage charges $1 per day at *Mountain Rest.* Many excellent roads lead to New Paltz, New York, the nearest town.

Hotel reservations should be mailed directly to Lake Mohonk Mountain House, not to the American Gas Association Headquarters. All room reservation requests will be filled by Lake Mohonk in the order of their receipt.

Following is the Tentative Program of the Conference:

FIRST MEETING

TUESDAY, MAY 24, 1932, 8:00 P.M.
(Eastern Standard Time)

Opening Remarks—H. P. J. Steinmetz, Chairman, Public Service Electric & Gas Co., Newark, N. J.

Future Gas Sales Developments—Walter Beckjord, Vice-Chairman, Commercial Section, A. G. A., Boston, Mass.

The Business Outlook—Thos. F. Woodlock, Wall Street Journal, New York, N. Y.

Gas Appliance Merchandising From the Merchant's Viewpoint—Speaker to be announced.

SECOND MEETING

WEDNESDAY, MAY 25, 1932, 10:00 A.M.

Symposium—The Industry's Sales Problems From the Manufacturer's Viewpoint—Frank Roberts, Standard Gas Equipment Corp., Baltimore, Md.; Lyle C. Harvey, Bryant Heater & Manufacturing Co., Cleveland, Ohio; Scott Fowler, Lovekin Water Heater Co., Philadelphia, Pa.

Refrigeration Sales on the 1932 Firing Line Retail—F. G. Roberts, Jr., Brooklyn Union Gas Co., Brooklyn, N. Y.

Wholesale—P. A. Carroll, Consolidated Gas Co. of N. Y., New York, N. Y.

THIRD MEETING

WEDNESDAY, MAY 25, 1932, 8:00 P.M.

Comparison of Gas and Electricity for Cooking and Water Heating—Dr. F. E. Vandaveer, A. G. A. Testing Laboratory, Cleveland, Ohio.

Advertising to Surmount Domestic Competition—H. C. Wilson, Howard C. Wilson Associates, Hartford, Conn.

FOURTH MEETING

THURSDAY, MAY 26, 1932, 10:00 A.M.

Address—Morse DellPlain, Northern Indiana Public Service Co., Hammond, Ind.

Developing Water Heating Sales—A. M. Anderson, Westchester Lighting Co., Mt. Vernon, N. Y.

Organizing for Better Servicing—C. E. Muehlburg, Consolidated Gas Co. of N. Y., New York, N. Y.; Hugh Cuthrell, Brooklyn Union Gas Co., Brooklyn, N. Y.

Gas Company Invites All To "Old Home Week"

Jacob B. Jones, manager, The Bridgeton Gas Light Company, Bridgeton, N. J., again has "gone to bat" for the home team. In a newspaper advertisement, the Bridgeton Gas Light Company last month volunteered to pay the cost of telegrams forwarded from the Bridgeton office to friends inviting them to join in an "old home week," which was held the middle of April.

Canadian Gas Association

(Continued from page 209)

1915-1916—R. A. Wallace, superintendent, Gas Department, Quebec Power Co., Quebec.

1916-1917—J. P. King, manager, Stratford Gas Company, Stratford, Ont.

1917-1918—J. M. H. Young, superintendent, City Gas Company, London, Ontario.

1918-1919—C. C. Folger, general manager, Public Utilities Commission, Kingston, Ont.

1919-1920—V. S. McIntyre, manager, Public Utilities Commission, Kitchener, Ont.

1920-1922—C. S. Bagg, secretary-treasurer, Montreal Light, Heat & Power Company, Montreal, Que.

1922-1923—Colonel D. R. Street, general manager, Ottawa Gas Company, Ottawa, Ont.

1923-1924—C. A. Jefferis, works superintendent, Consumers' Gas Co. of Toronto.

1924-1925—E. R. Hamilton, superintendent, Gas Department, Nova Scotia Tramways and Power Co., Halifax, N. S.

1925-1926—Major J. J. Humphreys, engineer, gas manufacture, Montreal Light, Heat & Power Con., Montreal, Que.

1926-1927—*John J. Armstrong, secretary, Consumers' Gas Co. of Toronto.

1927-1928—*P. V. Byrnes, then president, United Gas & Fuel Co., of Hamilton, Ltd., Hamilton, Ontario.

1928-1929—Frank Elcock, superintendent, Ottawa Gas Company, Ottawa, Ontario.

1929-1930—K. L. Dawson, superintendent, Gas Department, Nova Scotia Light & Power Co., Halifax, N. S.

1930-1931—A. T. Leavitt, vice-president, Hamilton By-Product Coke Ovens, Ltd., Hamilton, Ontario.

1931-1932—Hugh McNair, manager, Gas Utility, Winnipeg Electric Co., Winnipeg, Man.

* Deceased.

Testing Laboratory
R. M. CONNER, Director
MANAGING COMMITTEE
J. S. DeHART, Jr., Chairman N. T. SELLMAN, Secretary

Design of Combustion Spaces For High Temperature Gas Furnaces*

By F. E. VANDAVEER
Supervisor, American Gas Association Testing Laboratory

AS the use of gas for industrial heating purposes continues to increase, more attention is directed toward the fundamentals of furnace design. Each new heating process generally requires a different type, size, or shape of furnace from that previously in use. Some applications have required years of study and the expenditure of thousands of dollars before a satisfactory furnace could be developed. Examples of this development are the perfection of forge furnaces which will operate without the production of detrimental scale on the material heated, and of carburizing furnaces which use gas as the carburizing medium.

One of the most important parts of a gas furnace is the chamber or space in which combustion of the gas takes place. Such chambers may vary in size from a fraction of a cubic foot such as jewelry or dentists' furnaces, to several thousand cubic feet such as in a big metal melting furnace or a large ceramic tunnel kiln. It is therefore obviously impossible to discuss all these various types of combustion chambers in a short paper. Consequently, this discussion will be limited to general factors which must be considered in designing the combustion space of gas furnaces, with a few references to specific types.

The first factors to be considered are the physical characteristics of the gas to be used. They consist of: 1. Ignition velocity or speed of combustion; 2. Flame temperature; 3. Luminosity of the gas; 4. Specific gravity; 5. Heating value. The effect of the above characteristics on combustion space may be briefly summarized as follows: Ignition velocity limits the rate at which an air-gas mixture may flow through a burner without either flashing back or blowing off and has a material effect on the port area of the burner used. Knowledge of flame temperature is essential where high temperatures are required. Luminosity of the gas determines to some extent the radiant heat transmitted to the material being heated. High luminosity is very desirable in certain applications. Specific gravity as well as pressure of the gas governs the amount of primary air injected in atmospheric burners and orifice sizes for any burner cannot be accurately determined without such knowledge. Heating value per cubic foot of gas is essential in determining the amount of gas to be burned, size of piping, type of burners, etc. All the above factors must be known in order to select the burners and orifices to be used, which in turn fixes the size of the combustion chamber.

It is next necessary to know the temperature range within which the furnace is to operate and the kind of work to be done. These two factors determine the method of applying the heat.

Generally speaking, furnace temperatures are divided into a low and high temperature range. The dividing line is about 1000° F. In the low-temperature range the atmospheric Bunsen-type burner is most widely used. Gas at pressures up to about 8 ounces is used to inspirate into the burner part of the air required for combustion. The additional air, called secondary air, has to be supplied around the burner ports to insure complete combustion.

When designing a combustion space for a furnace operating in the low-temperature range, it is generally necessary to consider heat distribution as well as complete combustion. Secondary air in excess of the amount needed for complete combustion is practically always permitted. In so doing a more uniform heating is usually obtained and complete combustion insured. However, a balance has to be made between heating efficiency and the amount of excess air. The combustion space must be so designed that the flame from the burners will not impinge upon surfaces to such an extent that too great a proportion of the gas is cooled below its ignition temperature. In a great many installations in this temperature range the working chamber and the combustion space are one compartment. Baffles may be arranged so that uniform heating can be accomplished. Indirect heating, that is, where the gas is burned outside of the working chamber, is often employed in which case premixed gas and air can be utilized conveniently.

Combustion space design for the high-temperature range (above 1000° F.) is more involved than in the lower range. It is necessary to know the type of furnace to be employed, whether the work to be heated must have a certain atmosphere and whether it is necessary to change it during operation, also whether direct firing, indirect firing, or a muffle is to be used. It is then necessary to determine the type of burners to be employed and the kind of mixing system to be used. In this temperature range air and gas are almost always premixed before being delivered to the burners, although they may be conveyed separately to the burners in the correct proportions, mixing taking place at the burner. If a burner utilizes a refractory tunnel or a refractory bed, as for example in the Surface Combustion impact burner, the required combustion space is generally less per unit of gas input, as the flame is shorter, than for a burner not using a tunnel or a nozzle mixing burner.

In referring to space for combustion, it is necessary at the same time to mention the type of furnace, for this space is not always a separate part of the appliance. For instance, with a pot type

Looking into one of the research sections showing some of the equipment used in projects for the Committee on Industrial Gas Research

*Presented Feb. 11, 1932, at the Conference on Industrial Process Heating at Case School of Applied Science, Cleveland, Ohio.

of furnace employing only side firing the space around the sides of the pot may be called the combustion space. This is especially true of cyanide pots. The space underneath the pot is utilized only as a drain in case breakage occurs. With soft metal pots, some are fired exclusively under the metal containers instead of around the sides. In such cases the total bottom and side area might be classified as the combustion space. If the heat is applied beneath the hearth or some other support holding the work, the gas should be completely burned before it starts its travel up into the working chamber. This space under the hearth would be called the combustion space. However, if arch or overhead firing is used alone or in conjunction with under firing, the combustion space is then a part of the working chamber. It is necessary in such cases to use as many burners as are necessary to secure uniform arch heating. The arch should be high enough to eliminate any sweeping action of the flame upon the work to be heated and of such a radius that the reflected heat will completely and uniformly strike the charge.

If a muffle is employed in which the load is heated, the space under the muffle should be considered the combustion space for under firing, and the space over the muffle if over firing is used. There are a few cases where the combustion chamber is built separate from the furnace proper and the products of combustion conducted to the working chamber. In these furnaces the combustion space is relatively easy to design. In all of the above cases it has been assumed that a characteristic non-luminous flame is used. If a luminous flame is employed, different conditions might exist in which case the combustion chamber would have to be changed.

The primary purpose of a combustion space is to provide capacity in which the delivered air-gas mixture may burn with the maximum liberation of useful heat. However, there are other considerations that are very important. These are heat distribution, maximum efficiency, ease of operation and minimum investment. It is generally advisable to use as many burners as possible to get the desired heat distribution. This has to be balanced against cost. To insure a burner's accomplishing even distribution and operating at maximum efficiency, it is necessary generally to place it far enough away from the hearth or effective heating surface to allow the hot gases to diffuse and yet not place the burner so far away that the combustion space is unnecessarily large, thus increasing radiation losses. Provisions should be made for the complete burning of the gas before it is directed to the place where it is to liberate most of its heat.

The question then arises as to how much heat can be liberated with complete combustion in a given space. If the amount of heat in B.t.u. per hour that can be liberated (with complete combustion) per cubic foot of combustion space is used as a standard for making this comparison, figures may be found in literature varying from 14,000 to 50,000 B.t.u. per cu.ft. of combustion space.

Because of this large variation and realizing the need for more definite information on this subject, the Committee on Industrial Gas Research of the American Gas Association has sponsored an investigation to determine the Fundamentals of Combustion Space Requirements in High Temperature Furnaces. This work is being conducted at the Main Testing Laboratory of the American Gas Association located in Cleveland. Preliminary results obtained to date are rather interesting but cannot be regarded as being conclusive. In the furnace now being tested 70,000 B.t.u. per cu.ft. of combustion space has been completely burned with a temperature of around 2300° F. Although this is in no way an established limit, it serves to indicate the relatively high input possible to obtain with gas as a fuel. Unquestionably the allowable B.t.u. input will vary as the shape, the load, and the temperature employed are changed.

Another factor that is closely allied to combustion space design is the size and location of the flue. It is necessary to have the flue so designed as to have a slight pressure at the working level when the furnace is operating at its minimum working rating. This will insure a pressure throughout the working range of the furnace. When a furnace is operating under pressure, air which might have a detrimental effect on the materials being heated, cannot leak into the working chamber. Although the pressure in the furnace will vary at different levels, it is only necessary to insure a pressure at the working level of about 0.01 inch of water column. The location of the flue has a very important effect upon the combustion space. It is necessary to so place the flue that the flame from the burners will not have its natural course diverted by the draft within the furnace or part of the flame may by-pass toward the flue, causing incomplete combustion, as well as poor heat distribution. There are no fixed rules for flue location. It is necessary to so place the flue that the gases liberate as much heat as possible and still maintain as uniform a temperature distribution as possible before escapement from the furnace. This latter condition may necessitate a number of small flue openings instead of only one large opening.

A wide range from maximum to minimum heat input known as turn down ratio usually can be secured with one set of burners. However, it is sometimes necessary, where an exceedingly wide range of heat input is essential, to install two sets of burners. In such a case the combustion space should be designed for the maximum input rate, unless this rating is to be used only a small percentage of the time. If a slight reduction in efficiency is permissible at this maximum gas rate the highest normal consumption necessary for the heating process should be used as a design basis.

In this very general discussion of the design of combustion spaces for gas furnaces, a number of the factors which must be considered have been enumerated. A large amount of engineering data is already available on the subject. Additional information for the use of industrial gas engineers and gas users is being obtained through the research being sponsored by the American Gas Association so that greater accuracy in design may be employed and gas may be used more effectively for industrial heating processes.

Wisconsin Utilities Association

E. J. Steinberg

FOLLOWING its usual custom the Wisconsin Utilities Association recently held its annual election by mail. The 309 votes cast elected the following: President, E. J. Steinberg, The Milwaukee Electric Railway and Light Co.; vice-president, R. G. Walter, Wisconsin Power & Light Co.; treasurer, Ewald Haase, Milwaukee Gas Light Company; chairman, general section, G. V. Rork, Northern States Power Co.; vice-chairman, general section, F. A. Coffin, The Milwaukee Electric Railway & Light Co.

Public Utilities In the Changing Order

(Continued from page 206)

no longer exist. Possibly, to put it more bluntly, if we are to continue utilities as going concerns, we must take our stories somewhere and the public is the only place we can go. If properly presented, I think we need have no fear of the outcome.

And I believe, most strenuously, that the average citizen is fair—and that the average politician is an average citizen; that we can help them be fair by frankly and fairly going to the public with the whole status of these problems which vex and affect us all—mutually.

In other words, bring home to the public the fact that there are mutual obligations on both parties concerned, and not just upon one, as is sometimes thought—by both sides.

Natural Gas Department

T. J. STRICKLER, Chairman A. E. HIGGINS, Secretary L. K. LANGDON, Vice-Chairman

Two Trillion Cubic Feet*

By T. J. STRICKLER

Chairman, Natural Gas Department, American Gas Association

"TWO Trillion Cubic Feet," is a tremendous figure far beyond the comprehension of most of us. Yet it represents the approximate consumption of natural gas in the United States last year. In speaking today of the natural gas industry, one has to refer to such figures because the industry has grown to such proportions that it is difficult for us, even those connected with it, to realize what it represents. In order that we may get a proper perspective of the natural gas industry, let us stand back and consider a few facts.

The natural gas industry represents a capital investment of two and one-half to four billion dollars. This represents an investment of fifteen to twenty-five dollars for every man, woman and child living in the United States. Such examples help us to realize the magnitude of our industry. Here is an old industry suddenly developed in the last twelve years into one of the largest industries in the world. By investing billions of dollars of private capital, we have taken what was formerly a wasted commodity and, by harnessing it, have turned this huge supply of heat energy into a business that has created such progress to mankind, both in home comfort and industrial expansion, that it has astonished the world. No one could foresee a few years ago the development that has now taken place, nor could have dreamed of its accomplishments. An industry that seemed doomed not so many years ago suddenly springs forward until today it is recognized among the leaders. I do not call your attention to the immensity of its growth merely to portray the size of the natural gas industry, but its growth is symbolic of the service it renders. No industry can grow to this proportion without rendering a service to the progress of mankind. We are extremely proud of our growth and of our contribution to the advancement of the American home and industry.

Natural gas is bringing comfort and convenience to a population in excess of twenty-two million people. It is increasing the efficiency and decreasing production costs in thousands of industrial plants. It has lifted a great burden from many shoulders and is a closely woven part of our daily lives.

The history of the industry is colorful, but we of today are interested in the past only in order that we may benefit by our mistakes. We are more vitally interested in the present and in the future. Not so many years ago more natural gas was wasted in a month than was usefully consumed in a year.

One of the principal obstacles to favorable development of the industry was the inability to transport gas more than a few hundred miles by pipeline. This problem has been solved and the rapid development of the industry during recent years has been due in a large measure to the improvements in pipeline construction and the method of transportation.

In the last few years we have seen the gas main line transportation mileage of the United States practically doubled. From a group of twelve or thirteen states, all of the natural gas of any quantity is produced, and your State of Oklahoma ranks second in this list. From these producing states have been constructed thousands of miles of gas mains in every direction until thirty-two states and the District of Columbia are spanned by these lines; and they have become essential arteries of industry—pipelines reaching out a thousand miles from the fields to the market, an undreamed-of accomplishment. At the beginning of 1931 there were in operation approximately ninety-four thousand miles of main lines and feeder lines reaching out to the consuming public. If these gas transportation systems were built into a straight line they would reach around the world three and two-thirds times. This gives you a slight conception of the gigantic transportation system of the natural gas industry.

The construction of these lines has opened many new markets. During the past five-year expansion period such centers have been reached as Chicago, St. Louis, Memphis, New Orleans, Birmingham, Denver, Salt Lake City, San Francisco, and many other important markets, and natural gas is now available to hundreds of thousands of customers whom it would have been considered impossible to serve a few years ago. These pipelines that have been completed are merely significant of what is ahead. One does not have to strain his imagination to visualize the expansion and extension of these lines until a complete network has spanned the United States and is delivering fuel to all principal markets.

Since the beginning, our industry has contributed its full share to the progress and prosperity of the nation, but particularly has this been true during the past few years in its rapid expansion period. In 1931, 7,686 miles of natural gas main pipelines had been constructed, representing an investment of $318,265,000. In one item alone, the natural gas industry purchased approximately seventy-five per cent of the total steel pipe tonnage produced in the United States last year. This gas main distribution expansion, which represents only one phase of our business, has given employment to thousands of men, directly or indirectly, in every state in the Union, and has helped materially at this time when there is a slackening of employment and declining of business. The period of pipeline expansion certainly came at the opportune time. It has acted as a stabilizer to the manufacturers of pipe, compressors, pumps, welding units, dirt handling machines, tractors, trucks, and all other necessities to carry out this work. This line of activity has been doing much to lessen the effect of our present period of industrial depression.

To those who are always so willing to criticize and condemn every action of a Public Utility, for selfish motives or through lack of understanding, I would like to call the above statement to their notice, and add that the natural gas industry has been developed through private capital from an almost worthless by-product of oil production to one of the Nation's most valuable fuels. The conversion of this fuel to useful purposes has built one of the largest industries in our Nation, giving employment directly or indirectly to hundreds of thousands of men and women; an industry which certainly pays its portion to the upkeep of our government; an industry that is contributing to the advancement of our citizenship; an industry that is still in its infancy and can continue to grow if given a fair opportunity. Those who would attempt to hamper and restrict such a fundamentally sound industry by unjustified legislation or burden it unduly with taxes should take all of these things into consideration. If the natural gas industry is permitted to expand in the next few years as it has in the past six years, it will do its full share toward bringing back business to normalcy. If we are permitted to expand our services, permitted to popularize our product and appliances for home and factory, then we are able to employ more people, buy more equipment, and in these times, this

*Address before Oklahoma Utilities Association, Tulsa, March 8-9, 1932.

is no small contribution to public welfare.

During the past years our attention has been focussed upon many phases of our business. It has not been so many years ago that the natural gas industry seemed apparently doomed because of a shortage of gas. Then the industry was given new life with the discovery of enormous reserves in Oklahoma, Texas, Louisiana, California and other States. At that time the big problem of transportation to new markets through hundreds of miles of pipeline was most apparent. These and a multitude of other problems have presented themselves in the last few years. Baffling as they seemed at the time, they have been solved and we find that the natural gas industry has practically doubled in size in the last twelve years. In this short period of time we have had many important problems to face, but I am of the firm conviction that one of the biggest problems of all times faces us now. That is the problem of building a load. Billions of dollars of capital have been invested to build thousands of miles of pipeline and to expand every division of our industry in proportion, and now it becomes our duty to earn a fair return on the funds that have been invested with us, and at the same time, enable us to continue to maintain and improve our services from year to year. We must justify the faith that our stockholders have in us and extend this faith in order to insure future credit.

It is necessary for us to study our marketing problems and build a load for the permanency of our industry. Everyone in the gas industry must realize that we are in the business to sell gas. Our product is one of the Nation's most valuable fuels. It has a definite and permanent place in the future progress of our Nation. Through New Business operations and Dealer Cooperation we have comfort, cleanliness, and convenience to sell every family on our lines. To every industrial plant we have efficiency and increased production to sell. We have an abundance of our product and our markets must be developed to a point where our investments will pay a fair return. The one way to assure this is to sell more gas.

The use of natural gas as a fuel is placed in active competition with oil, coal, coke and electricity and we recognize this competition, but it is our job to create a desire on the part of the consuming public for heating service that is clean, safe, attention-free, and automatic. We have a natural advantage because of the ease of handling and efficiency with which heat control can be effected. We must sell our commodity on its many merits.

Several years ago the natural gas industry was accused of not being aggressive by our competitors and this criticism was more or less justified, but today we are being admired for our progress. Any new thoughts or ideas always find welcome ears in the natural gas industry today and nothing is as sure as change. We are constantly endeavoring to improve our service to those whom we have the privilege of serving. Practically all distributing companies are conducting educational courses for employees to train them in their particular phase of work. To further our endeavor to keep abreast of the trend of time, our industry, through the American Gas Association, maintains two laboratories, one in Cleveland, the other in Los Angeles, which are successfully directing the program of investigation, testing new equipment for safety and efficiency, and finding many new uses for gas. One of the most interesting experiments is the making of your preferred weather with gas. In your home, office building, store, or amusement house, you can have the exact warmth you desire during the winter months and soon you can have your choice of cool weather during the summer months by cooling with gas. This is only one of the many new uses for gas that is on the horizon.

The natural gas industry is neither in the clouds nor in the dumps. It is on a firm foundation, one of the country's leading industries and we have every reason to be optimistic as to its future. Certainly we have not been immune to the present economic conditions. We have suffered mainly from decreased revenue of industrial consumers, but in the face of these facts, we will find ways to hold our own. We have an industry of which we can be justly proud, which offers innumerable opportunities, one that can continue to grow and increase its useful services and contribute to the progress of mankind.

Gas and Electricity for Domestic Heating

(Continued from page 185)

lowed in the preparation of Charts Nos. II, III, and IV, although the range in heating value of the gases used in some cases is slightly different.

Gas clearly possesses an economic advantage over electricity, not alone from the standpoint of initial cost of the appliances which utilize it but from the viewpoint of operating costs. The generation of hydro-electric power, perhaps one of its keenest competitors, is not increasing as rapidly as electrical energy produced from steam plants. While it seems entirely probable that the use of electricity will materially increase, particularly for residential lighting purposes, during the next few years it does not appear as time goes on that the economic relationship will become less favorable to gas. As a matter of fact, the discovery of new natural gas fields, the practice of mixing gases, increases in the size, capacity and tensile strength of long-distance gas mains, combined with general improvements in the industry's send-out characteristics resulting from the greater use of its product for house cooling and industrial purposes should increasingly favor gas.

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Use Gas for Bright Annealing of Stainless Steel

THE American Gas Association research in bright annealing has been in the field of brass essentially, but gas is also used for bright annealing of such materials as stainless steel.

A new patent on a method of annealing and cleaning stainless steel has recently been issued, and has already been licensed to several mills. Strip or stainless steel is passed cold, as a rule, through a series of finishing rollers, which produces a bright finish but a hard structure, so that it cannot be passed through dies, shears, etc., successfully. If annealed in the ordinary way, the surfaces will be oxidized to such an extent that the high polish from the rolling cannot be restored.

The strip to be annealed passes into the annealing furnace at, say, 1400°, in which it travels over continuously moving rollers. A slightly oxidizing furnace atmosphere is maintained, producing a slight scale, which is removed by passing the annealed steel through a sulfuric acid bath in which a direct electric current is passing to the strip as positive pole. Buffing restores the original high polish.

Gas companies wishing information on this process may address the J. D. Crosby Company, Pawtucket, R. I.

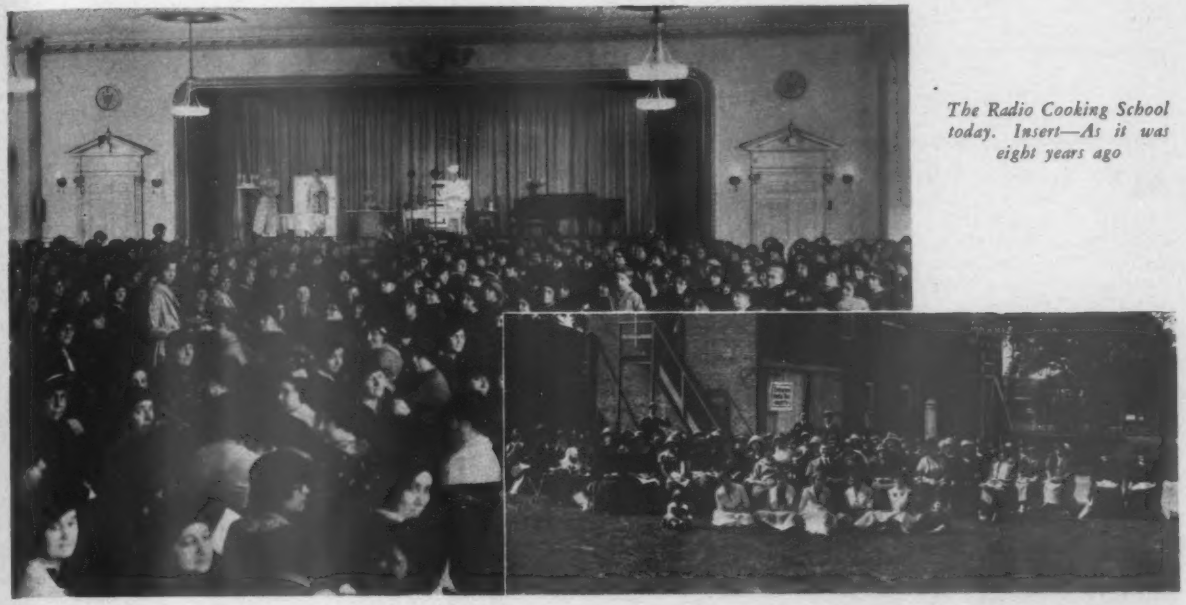
Property Change in Oklahoma

PROPERTIES of the Junior Gas Company and the Sooner Oil & Gas Company in Le Flore County, Oklahoma, have been acquired by the LeFlore County Gas & Electric Company in conjunction with the Service Gas Company. The latter company will operate the distribution systems at Heavener and Howe, formerly owned by the Junior Gas Company, and will continue to operate distribution systems at Spiro and Red Oak.

Home Service Committee

HULDA UNGERICHT, Chairman — JESSIE MCQUEEN, Secretary

Radio Cooking School Grows Rapidly



The Radio Cooking School today. Insert—As it was eight years ago

EIGHT years ago the Radio Cooking School of the Public Service Electric and Gas Company, in Newark, N. J., was organized over station WAAM. The school has grown from a few members to an enrollment of over 19,000 members. A broadcast is given twice a week and once a month a radio party is held in the auditorium of the Public Service Building. The radio party on Thursday, March 24, commemorated eight years of broadcasting by Ada Bessie Swann, director of the school. Miss Swann, with the cooperation of WAAM repeated the first broadcast which was given when the school was organized. Those members who could bring recipe sheets of the first lesson of the radio cooking school were identified as charter members and about fifty women responded. This group was entertained at a tea following the radio party.

Columbia University Course

A SUMMER course in Household Gas Appliances for the sixth year is being offered at Columbia University, New York, July 5-22. This is a lecture and laboratory course conducted by Dr. C. J. Lynde, Head of the Household Engineering Department, in cooperation with the American Gas Association, and assisted by T. H. Schleuning, engineer of the Consolidated Gas Company of New York.

The mornings will be devoted to class work, while the afternoon work is optional. Programs are planned for five afternoons of the three weeks under the direction of the Home Service Committee of the A. G. A. These afternoon programs include food and nutrition lectures by members of the Home Economics Staff at Columbia University and field trips to various of the Home Service Departments around New York City.

Committee Meeting

Hulda Ungericht

SIXTEEN members of the Home Service Committee met at Association Headquarters in New York on Friday, April 8, with Miss Hulda Ungericht of the Ohio Fuel Gas Company, presiding as chairman.

The subject of how home service can meet changing business conditions was especially emphasized. The second booklet in the Home Service series called "Outside Activities" which has been prepared by a subcommittee under the direction of Mrs. Ella Liner Lambert, of the Milwaukee Gas Light Company, was reported as ready for distribution to the industry. It is the second of a series of booklets, the first of which is the one on "Home Calls" which has been available since last October. Two more booklets, one on "Inside Activities" and another on "Aims, Organization and Publicity" will be available before the October convention.

A. G. A. Laboratory Course in Appliances

PLANS are in formation to hold a Home Service Conference and Course in Domestic Gas Appliances at the A. G. A. Testing Laboratory, in Cleveland, O., June 15-17.

For four years past the Home Service Committee has cooperated with the staff at the Testing Laboratory in a week's intensive course in appliances, designed to equip home service workers, service men and others interested with a knowledge of the design, operation and servicing of domestic gas appliances.

This year the Educational Subcommittee of the Home Service Committee has decided to change the scope of the course for 1932 to shorten it to a two and one-half day conference to include an equal

number of home service subjects with lectures on appliances by laboratory engineers. Miss Ada Bessie Swann of the Public Service Company of New Jersey, as chairman of the Educational Committee and F. R. Wright, Publications Editor of the A. G. A. Testing Laboratory, working with Miss Hulda Ungericht, of the Ohio Fuel Gas Company, chairman of the Home Service Committee, are in charge of the program and arrangements.

Gasettes

MRS. ARRA SUTTON MIXTER, home service director of the Hartford Gas Company, Hartford, Conn., discussed the activities of home service in that city at the New Jersey Gas Association convention in Newark, N. J., on March 30. She described the system of following up sales on new appliances and referred to the success of calls made to settle high bill complaints. Mrs. Mixter referred to the electric cooking competition and described the advertising of the Hartford company to counteract competitive claims, stressing particularly the phrase that "cooking with gas is better." Mrs. Mixter also described a style show held by the utility company to tie in with its efforts in establishing gas as the most modern fuel and reported that it showed immediate impetus to sales. Mrs. Mixter likewise addressed the group of twenty-six home service directors of New Jersey and the metropolitan area, who assembled at a luncheon meeting.

Miss Anna Ludden, home service director of the Montana Power Company, Butte, Mont., reports a program of appliance education in the local high school, covering ranges, water heating and house heating, with a subject given an hour discussion on three separate days. A kitchen planning contest was instituted with each student drawing plans of a modern kitchen. This has done a great deal to encourage interest and enthusiasm among the student body. Plans are being judged by prominent women in the city and prizes awarded to the winners.

The New Orleans Public Service Company announces the formal opening of its home service department which took place on March 15 with Mrs. Eva Pender as home service director. Mrs. Pender has had home service experience in utility companies on the Pacific Coast and has been connected with the Louisiana State Extension Service. The program of class work has been planned for fourteen weekly lectures, together with other phases of home service work.

Personal and Otherwise

Ord Preston, former president of the Washington Gas Light Company, has been elected president of the Union Trust Company, Washington, D. C., succeeding Edward J. Stellwagen who resigned on account of ill health.

H. W. Elder has been appointed gas sales engineer in charge of large commercial and industrial installations for the San Diego Consolidated Gas & Electric Company, San Diego, Calif., and Ralph Phillips has been elevated to engineer in charge of general gas sales promotion for the same company.

J. Sanford Holt, general superintendent and engineer of the Seattle Gas Company, Seattle, Wash., has been transferred to Augusta, Ga., where he will become manager of the gas company property of the Central Public Service Corporation.

Benjamin K. Cook, for 20 years manager of the North Adams Gas Light Company and the affiliated Adams, Williamstown and Stamford, Vt., companies, has been advanced to the position of vice-president of the North Adams Gas Light Company and has been succeeded in the managership of the four utility concerns by Herbert A. Southworth, formerly assistant manager.

M. N. Aitken has been appointed sales engineer in charge of the sale of Neilan equipment to the natural and manufactured gas industries according to Neilan Company, Ltd., Los Angeles, Calif., manufacturers of automatic regulating and control instruments.

R. B. Brown

R. B. Brown, president of the Milwaukee Gas Company, the American Light & Traction Company and the Detroit City Gas Company, has resigned the presidency of the latter company because of the amount of work involved as the head of three companies. William G. Woolfolk, consulting engineer of the American Light and Traction Company and a veteran in the public utility field, has been selected to succeed Mr. Brown as president of the Detroit company.

Nelson K. Moody has been made president of the Sinclair Prairie Gas Company, a new unit formed in connection with the merger of the Sinclair and Prairie Oil properties to handle all natural gas properties and operations.

W. H. Strain, manager of the Tiffin, Ohio, plant of the Ohio Fuel Gas Company, has been retired on a pension after thirty years of service with the company and its predecessor, the Logan Gas Company. Mr. Strain will be succeeded by David Edwards who has been assistant industrial engineer at Fostoria, Ohio.

A. Lieberman of Texarkana, La., has been re-elected president of the Southwestern Gas and Electric Company. Mr. Lieberman has been president of the company since 1929.

Milton L. Kapp, manager of the Oklahoma City district of the Oklahoma Natural Gas Corporation, has been appointed supervisor of district operations and will be located in the general offices in Tulsa, Okla. Other personnel changes in this company include Thomas Sterling, now manager of the Enid district, succeeds Mr. Kapp at Oklahoma City and John G. Longsdorf will act as his assistant. C. Henry Sacher, who has been assistant manager of the Tulsa district, will occupy the position formerly held in Enid by Mr. Sterling.

S. E. Kerr has been transferred to the tax department of the Lone Star Gas Company, Dallas, Tex. Mr. Kerr has been succeeded by C. L. Trevitt as new business manager of the Community Natural Gas Company.

E. J. Stephany Joins Dallas Power and Light

E. J. STEPHANY, former secretary of the Natural Gas Department, American Gas Association, and for many years associated with the gas and electric industries, has been named director of personnel and claims of the Dallas Power & Light Company, Dallas, Texas, an Electric Bond & Share subsidiary.

E. J. Stephany

At the time of his selection as secretary of the Natural Gas Department, Mr. Stephany was assistant to the manager of sales and service of the Philadelphia Company, and he had been attached to that company or its subsidiary, The Equitable Gas Company, for ten years. He is a graduate in mechanical engineering of the University of Wisconsin.

Mr. Stephany also has been secretary of the Pennsylvania Natural Gas Men's Association, an affiliated organization of the American Gas Association, and in past years was active in the Commercial, Industrial and Publicity and Advertising sections of the American Gas Association.

Technical Section

I. K. PECK, Chairman H. W. HARTMAN, Secretary K. H. CREE, Asst. Secty. J. A. PERRY, Vice-Chairman

Distribution Conference Attracts Many Engineers to Birmingham

By K. H. CREE

THE Ninth Annual Conference of the Distribution Committee was held in Birmingham, Alabama, at the Tutwiler Hotel on April 6, 7, and 8 with an attendance of 250 delegates from many sections of this country and Canada. This meeting was said to be one of the most interesting and instructive Conferences of its kind ever held.

F. A. Lydecker, chairman, opened the conference with congratulatory remarks for the committees which have rendered great service in making these meetings possible. Mr. Lydecker also mentioned that Birmingham was chosen for the conference inasmuch as it presented an excellent opportunity for all delegates to inspect the manufacture of cast-iron pipe and visit natural gas situations in the vicinity.

The program, which was the result of tireless effort on the part of the Advisory Committee of the Distribution Committee, covered many subjects of vital importance to the distribution engineer, both from a manufactured and natural gas standpoint.

Among the papers presented at the conference which attracted wide interest were a study of the "Economics of the House Heating Load," by Raymond A. Ransom, Henry L. Doherty & Co., New York; "Pipe Joint Research at A. G. A. Laboratory," by K. R. Knapp, A. G. A. Laboratory, Cleveland, Ohio, and "Copper Pipe for Gas Distribution," by Arthur F. Bridge and Frederic A. Hough, Southern Counties Gas Company, Los Angeles, California.

Mr. Ransom gave an analysis of a house heating situation with respect to obtaining large increases in this class of business. He has made a thorough study of revenues to be derived in obtaining a large saturation of house heating load wherein a definite price must be charged for the gas with full consideration given to the town border price plus the investment in new mains and services. The analysis of course is hypothetical and can be applied to most any situation.

The progress report presented by Mr. Knapp on pipe joint research at the A. G. A. Testing Laboratory contains many recommendations, which the committee feels should be of extreme value in making joints for existing and future distribution systems. A complete study has been made at the Laboratory on both cast-iron and mechanical joints and this work has progressed to a point now where it will be completed during the present year.

Frederic A. Hough, who traveled from California to present a paper on "Copper Pipe for Gas Distribution," has had much experience on this relatively new subject. Mr. Hough's company has for some time closely observed the action of soil corrosion on copper and finds that this metal is suitable for the conditions that exist in their locality. The factor of price differential has been taken carefully into consideration and it is surprising to note how well this difference can be justified in corrosive areas.

The papers presented on "Service to Customers" also received much commendation and indications are that many companies are striving to set up more pleasant and agreeable relations with their customers. Many new ideas have been brought forward in this line of endeavor and these companies are to be congratulated on the valuable work they are undertaking.

The subcommittees of the Distribution Committee read reports on "Meters," "Lost and Unaccounted for Gas," "Pipe Joint Research," "Pipe Coatings and Corrosion," "Changeover from Manufactured to Natural Gas," and "Cast Iron Pipe Standards." These reports were available at the Conference and will appear finally with latest progress at the A. G. A. Convention this fall.

The inspection trip to the cast-iron foundries, which was conducted on April 7, was patronized by many of the delegates. Starting from the hotel the members were transported in private cars to the plants. All operations were so timed in these plants that everyone had an opportunity to view many interesting processes.

The trip included a tour through the plants of the McWane Cast Iron Pipe Company, American Cast Iron Pipe Company, U. S. Pipe and Foundry Company and the National Cast Iron Pipe Company, wherein DeLavaud, Monocast, Sand Cast and McWane pipe is manufactured. Each plant provided guides to conduct the tours and explain the various operations as the trip progressed. At noon there was provided for all those attending the trip a Southern barbecue in Birmingham Park. Entertainment at the barbecue was furnished by a negro "tin can band."

The local committee in charge of the inspection trip was composed of the following members: J. J. Swenson, Chairman, American Cast Iron Pipe Co.; Paul A. Ivy, National Cast Iron Pipe Co.; J. D. Sample, McWane Cast Iron Pipe Co.; T. W. Simons, U. S. Pipe and Foundry Co.; B. H. Elliot, Birmingham Gas Company; H. B. Pearson, Southern Natural Gas Corp., and T. J. Bailey, Birmingham Chamber of Commerce.

An enjoyable trip was offered the ladies in attendance at the Conference by a local committee in charge. A tour of the city taking in important points of interest was the feature of the trip. Luncheon was served at the Mountain Brook Country Club.

The evening session, which was held on April 7, was well attended. The presentations by Messrs. Wehrle, Buckley and Allen on subjects relating to the changeover from manufactured to natural gas were actively discussed and great interest was shown throughout the program.

Mr. Buckley, of The Peoples Gas Light and Coke Co., Chicago, Ill., explained the method used in his city to adjust appliances for the new gas—how service crews were hired and trained and allotted to definite territories to begin work. There were men for ranges, another group for house heaters and water heaters, another group for industrial plants and still additional groups for dentists and dental laboratories. The change-over was made in good time with a minimum number of complaints.

Mr. Allen, Washington Gas Light Company, Washington, D. C., presented interesting data on his company's method of securing large increases in house heating business and simultaneously offering efficient distribution service. A very interesting part of Mr. Allen's report was on the excellent procedure followed in estimating increases in house heating business over a period of years. In this manner Washington has definite plans laid out for increases in its distribution system to take care of additional loads as they are secured.

Attendance at all sessions was 100% and every presentation received active discussion. The interest shown by the members in the various subjects was evident and complete participation was taken by all those present.

All delegates coming from New York, New England and intermediate points enjoyed the convenience of a special train over the Seaboard Airline Railway lines to Birmingham.

Monthly Summary of Gas Company Statistics

FOR MONTH OF FEBRUARY, 1932

Issued April, 1932, by the Statistical Department of the American Gas Association
420 Lexington Avenue, New York, N. Y.

PAUL RYAN, Statistician

COMPARATIVE STATISTICS OF 206 MANUFACTURED GAS COMPANIES FOR THE MONTH OF FEBRUARY, 1932

	Month of February			*Two Months Ending February 29*		
	1932	*1931*	*Per cent Increase*	*1932*	*1931*	*Per cent Increase*
Customers						
Domestic	8,872,211	8,976,196	— 1.2			
House Heating	52,305	47,149	10.9			
Industrial and Commercial	408,165	394,164	3.6	*See February*		
Miscellaneous	7,472	12,259	—			
Total	9,340,153	9,429,768	— 1.0			
Gas Sales (MCF)						
Domestic	20,981,786	22,091,979	— 5.0	43,696,612	46,464,844	— 6.0
House Heating	2,941,516	3,051,902	— 3.6	5,846,061	6,432,441	— 9.1
Industrial and Commercial	6,677,703	7,329,139	— 8.9	13,376,902	14,806,879	— 9.7
Miscellaneous	200,207	202,588	—	418,027	436,097	—
Total	30,801,212	32,675,608	— 5.7	63,337,602	68,140,261	— 7.1
Revenue (Dollars)						
Domestic	24,230,520	25,602,958	— 5.4	50,370,475	53,539,649	— 5.9
House Heating	2,078,559	2,310,948	—10.1	4,142,221	4,858,121	—14.7
Industrial and Commercial	5,771,627	6,385,241	— 9.6	11,576,978	12,954,990	—10.6
Miscellaneous	145,016	141,206	—	292,080	300,946	—
Total	32,225,722	34,440,353	— 6.4	66,381,754	71,653,706	— 7.4
Gas Produced and Purchased (MCF)						
Gas Produced						
(a) Water Gas	15,020,526	16,394,943	— 8.4	29,899,263	35,370,423	—15.5
(b) Retort Coal Gas	2,423,593	2,870,401	—15.6	5,088,098	6,057,989	—16.0
(c) Oil Gas	852,473	763,624	11.6	1,755,131	1,658,559	5.8
(d) Coke Oven Gas	4,017,075	4,080,042	— 1.6	8,396,178	8,289,657	1.3
(e) Reformed Oil Still Gas	397,842	371,176	7.2	810,565	683,222	18.6
(f) Total Gas Produced	22,711,509	24,480,186	— 7.2	45,949,235	52,059,850	—11.7
Gas Purchased						
(a) Coke Oven Gas	8,106,489	9,335,255	—13.2	16,736,537	19,827,835	—15.6
(b) Oil Still and Natural Gas	5,072,984	347,664	—	10,364,660	549,062	—
(c) Total Gas Purchased	13,179,473	9,682,919	36.1	27,101,197	20,376,897	33.0
Total Gas Produced and Purchased	35,890,982	34,163,105	5.1	73,050,432	72,436,747	0.8

COMPARATIVE STATISTICS OF 212 NATURAL GAS COMPANIES FOR THE MONTH OF FEBRUARY, 1932

Customers						
Domestic (Including House Heating)	4,607,540	4,629,887	— 0.5			
Commercial	242,164	235,011	3.0			
Industrial	19,043	17,333	9.9	*See February*		
Main Line Industrial	5,978	4,718	26.7			
Miscellaneous	1,863	2,530	—			
Total	4,876,588	4,889,479	— 0.3			
Gas Sales (MCF)						
Domestic (Including House Heating)	34,394,406	36,604,507	— 6.0	70,094,658	77,927,435	—10.1
Commercial	5,902,529	5,760,672	2.5	11,828,722	12,289,405	— 3.8
Industrial	15,138,672	17,499,653	—13.5	30,745,087	35,156,161	—12.6
Main Line Industrial	11,981,403	12,734,476	— 5.9	24,923,086	25,653,878	— 2.9
Miscellaneous	539,343	368,975	—	1,173,155	728,717	—
Total	67,956,353	72,968,283	— 6.9	138,764,708	151,755,596	— 8.6
Revenue (Dollars)						
Domestic (Including House Heating)	22,702,324	23,323,044	— 2.7	46,285,186	50,889,523	— 9.1
Commercial	2,617,564	2,652,751	— 1.3	5,271,147	5,759,283	— 8.5
Industrial	3,473,608	4,176,854	—16.8	6,952,161	8,489,754	—18.1
Main Line Industrial	1,484,705	1,703,699	—12.9	3,129,669	3,387,860	— 7.6
Miscellaneous	98,101	96,492	—	202,399	206,438	—
Total	30,376,302	31,952,840	— 4.9	61,840,562	68,732,858	—10.0

Gas Utility Sales Improve During February

REVENUES of manufactured and natural gas utilities aggregated $62,602,024 in February, 1932, as compared with $66,393,193 in February, 1931, a decline of 5.7 per cent, according to reports from 418 companies serving 14,216,741 customers and representing over 90 per cent of the public utility distribution of manufactured and natural gas.

This represents the smallest decline in revenues reported since September, 1931, and indicates a distinct improvement over the preceding month of January, 1932, when revenues of the reporting gas utilities fell nearly 12 per cent below the corresponding month of 1931.

The manufactured gas companies reported revenues of $32,225,722 for February, a drop of 6.4 per cent from a year ago, while revenues of the natural gas concerns totaled $30,376,302, or approximately 5 per cent less than for February, 1931.

Sales of manufactured gas reported for February totaled 30,801,212,000 cu.ft., a decline of 5.7 per cent, while natural gas sales for the month were 67,956,353,000 cu.ft., a drop of nearly 7 per cent.

Throughout the country generally, industrial gas sales, both for manufactured and natural gas utilities, continued at levels considerably below the preceding year, the decline in sales of manufactured gas for industrial purposes approximating 9 per cent for the country at large, while industrial sales of natural gas were down nearly 14 per cent from February, 1931.

Sales of manufactured gas for house heating purposes declined only 4 per cent for the month, which was in sharp contrast to the drop of nearly 14 per cent which characterized this class of business in January.

Pittsburgh Group Runs Up Safety Record

ABOVE is reproduced photograph of a bronze plaque awarded to the employees of District No. 5, Pittsburgh group, of the Manufacturers Light and Heat Company, for having the best safety record in the section for the period from July 1 to December 31, 1931.

Members of this group did not have a lost-time accident during the period referred to, although they worked a total of 432,235 hours.

Report on Pipe Joint Research

(Continued from page 198)

of practical benefit. At this writing the field investigation is still in progress and it is accordingly not possible to report the results. It is planned later in the session to give a brief summary of this subject to bring it up to date so that the industry may be fully acquainted with the latest developments and plans for further activity.

It has also been proposed that a study be made of the results which have been obtained in different situations following a change-over from manufactured to natural gas. This will be devoted entirely to a consideration of the effects on the distribution system so far as joint leakage is concerned. Final plans have not as yet been completed, but it is anticipated that some very valuable information can be secured by a systematic study of the results of such change-overs from a number of situations. It is hoped that at a later date complete results will be available on this subject.

Birmingham Steps Out with Gas Range

(Continued from page 193)

beauty. The modern gas range goes its owner one better and offers both style and beauty.

"The modern gas range is available with a gleaming porcelain or solid cooking top requiring only a daily gesture for cleanliness.

"The modern gas range has automatic lighters for all burners giving at once the greatest convenience and safety.

"The modern gas range bears the seal of approval of the American Gas Association and of the Canadian Gas Association, certifying it is safe for the reasonable life of the range.

"The modern gas range's time and temperature regulators guarantee perfect results. They make the culinary skill of experts the property of every user, and free the homemaker for other duties and pleasures.

"Our manufacturers deserve the fullest praise for the steady and notable improvement in the tools with which we work. They have produced and are marketing appliances which are at least the equal of any appliance made to do the same work. Their products as exhibited at the 1931 Convention and Exhibition of the American Gas Association, were of a quality and appearance to make anyone proud to be in the industry."

Halford Erickson Dies at Illinois Home

(Continued from page 190)

and warm personal interest with great executive power. His knowledge of the public utility business was thorough, especially since he gained his first experience in the field through his connection with a State regulatory commission, gaining an insight into utility operation from the public point of view before he identified himself with the industry. He was a close personal friend of all his business associates and we shall miss him keenly."

Mr. Erickson married Miss Anna Carlson in 1889, in Minneapolis, who survives him. He was a member of the Union League Club of Chicago and the Pendennis Club of Louisville, Kentucky.

Gas Appliance and Equipment Developments

New Dry Gas Holder

The Stacey Brothers Gas Construction division of International-Stacey Corporation, Cincinnati, Ohio, specialists in the building of telescopic gas holders of all capacities, the Stacey "Bullet" for high-pressure storage, purifiers, and other gas equipment, has issued a pamphlet describing the "Stacey-Klonne Dry Gas Holder." According to the manufacturers, this holder is of an entirely new type of construction and was developed in Germany by the firm of August Klonne.

Centrifugal Blowers

The B. F. Sturtevant Company, Hyde Park, Boston, Mass. announces the development of a complete new line of centrifugal blowers for use with gas furnaces. These blowers are fully described in a catalog, No. 386, now ready for distribution.

New Representative

The Barber-Greene Company, Aurora, Illinois, manufacturer of Standardized Material Handling Machines, announces the appointment of the Boehck Equipment Company of Milwaukee to represent it in Wisconsin. The Boehck Equipment Company is a new organization with offices and warehouse at 2404 W. Clybourn Street and has had considerable experience with conveyors, ditchers, loaders, and the planning of yards and plants.

Defrosting Cocks

Roberts Defrosting Cocks, a new device for use in defrosting gas-fired refrigerators, is offered by the Roberts Brass Manufacturing Company, Detroit, Mich. This apparatus makes it possible to defrost the unit without extinguishing the flame, thus making relighting unnecessary.

"Orifice Meters for Gas"

In Foxboro's latest publication—Bulletin No. 176, entitled "Orifice Meters for Gas"—attention is called to the description of the Foxboro 20" Meter, which it is claimed, makes it possible to meet the requirements of the A. G. A. for measuring gas at low static pressures without sacrificing ruggedness, dependability, accessibility or accuracy. Among other features of this bulletin is a complete section on construction details of Foxboro Meters; a section describing the use of Foxboro Meters with 2½ and 8 pipe diameter connections; a description of the special use of the Meter with 0-10 square root charts; and a page describing other instruments used in gas measurement service. Copies of this bulletin will be sent upon request to the Foxboro Company, Foxboro, Mass.

Contributions of news items by manufacturers of gas appliances and equipment to this department will be welcomed by The A. G. A. Monthly. On account of space limitations, all announcements of new products, improvements, etc., should be limited to about 100 words. No attempt will be made to describe each product or give details of construction. For such details address the manufacturer direct. Where justified, photographs will be used to illustrate these brief items. All contributions to this department should be addressed to C. W. Berghorn, Secretary, Manufacturers' Section, American Gas Association, 420 Lexington Ave., New York, N. Y.

Linde Products

The technique of the Lindeweld process and its application in the construction of a 20" natural gas line are illustrated in a new two-reel film which is available for showing before technical and industrial groups. Other products recently announced by the Linde Air Products Company, 30 East 42nd St., New York, N. Y., include a new series of welding heads for use with the Oxweld Type W-17 Welding Blowpipe; a full line of cylinders for the transportation of refrigerant gases; a new bronze welding rod designed for use in the rebuilding of wear-resisting surfaces such as piston rings or cylinder walls, and which is non-fuming and free-flowing; and a new Tip Adaptor, an addition to the Purox welding apparatus line which makes it possible to use the stems and tips of the Purox No. 00 Welding and Lead Burning Torch on the Purox No. 11 Welding Torch.

New Developments

Worthington Pump and Machinery Corporation, Harrison, N. J., recently has released publications containing descriptions of its latest developments in the following subjects: Stationary Diesel engines, marine Diesel engines, gas engines, portable air compressors, vertical sump and irrigation pumps, and centrifugal pumps.

Gas Measurement

The American Meter Company, 105 West 40th St., New York, N. Y., manufacturer of gas meters and allied apparatus, describes the following recent developments for gas measurement in its periodical: Metric Integrating Orifice Meters and Flowmeters, Base Pressure Index, Metric Adjustable Stainless Steel Lapped Stuffing Box, Metric Wide-Range Orifice, Dual Meter Control, Metric Differential Valve, and Metric Needle Valve.

Circulating Heater

The Bryant Heater & Manufacturing Company, Cleveland, Ohio, has taken over the sale of the Griswold "Two-in-one" gas fired Circulating Heater, manufactured by the W. A. Griswold Company, Nashville, Tenn. The Bryant Company has contracted for the entire output of the Griswold Factory and has secured exclusive sales rights for all of the United States.

New Valve Structure

The Fisher Governor Company, Marshalltown, Iowa has issued a new booklet on characteristics and construction of regulator valve bodies and inner valves which describes the improved inner valve structure known as the Fisher Konovalv. According to the booklet, this structure enables better performance, longer life, less wire drawing, and elimination of pumping.

William N. Agnew Dies

WILLIAM NEWTON AGNEW, traffic manager of the Worthington Pump and Machinery Corporation, New York City, since 1910, and also assistant to the president for the past three years, died suddenly April 12 at his home in the Hotel Woodward, New York. His wife, Mary Aldrich Agnew whom he married in 1899, and a daughter, Mrs. Edith A. Tait, survive him.

Window Display Bulletin Features Refrigerators

ANNOUNCING the Window and Store Display Bulletin for May, featuring refrigeration displays, the Window and Store Display Committee of the Commercial Section, American Gas Association, again emphasizes the importance of attractive appeal in window display advertising and further maintains that forceful window display is the most effective advertising medium per dollar invested. Economy is the keynote of this latest refrigeration issue, reflecting the prevailing spirit, and the typical set-ups used indicate an ever-improving technique and originality.

It has been decided that the July issue—the Summer Number—will be devoted to house heating and space heating; the latter displays anticipating window requirements in September and October. This issue will appear July 1.

Associations Affiliated with A. G. A.

Canadian Gas Association
Pres.—Hugh McNair, Winnipeg Electric Co., Winnipeg, Man.
Sec.-Tr.—G. W. Allen, 21 Astley Avenue, Toronto.

Empire State Gas and Electric Association
Pres.—Alfred H. Schoellkopf, Niagara Hudson Power Corp., Buffalo, N. Y.
Chairman, Gas Section—F. C. Weber, The Brooklyn Union Gas Co., Brooklyn, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.

Illinois Public Utilities Association
Chairman—A. D. Mackie, Illinois Power Co., Springfield, Ill.
Sec.—J. R. Blackhall, 617 Public Service Bldg., Springfield, Ill.

Indiana Gas Association
Pres.—F. X. Mettenet, Public Service Company of Indiana, Indianapolis, Ind.

Michigan Gas Association
Pres.—J. E. Spindle, Grand Rapids Gas Light Co., Grand Rapids, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.

Maryland Utilities Association
Pres.—F. A. Mitchell, Eastern Shore Public Service Co., Salisbury, Md.
Sec.—D. E. Kinnear, 803 Court Square Bldg., Baltimore, Md.

Mid-West Gas Association
Pres.—W. E. Derwent, Geo. D. Roper Corp., Rockford, Ill.
Sec.-Tr.—Roy B. Searing, Sioux City Gas & Electric Co., Sioux City, Iowa.

Missouri Association of Public Utilities
Pres.—A. E. Bettis, Kansas City Power and Light Co., Kansas City, Mo.
Sec.-Tr.—F. D. Beardslee, 315 N. 12th St., St. Louis, Mo.
Asst. Sec.—Jesse Blythe, 103 West High St., Jefferson City, Mo.

New England Gas Association
Pres.—I. T. Haddock, Cambridge Gas Light Co., Cambridge, Mass.
Exec. Sec.—C. D. Williams, 41 Mount Vernon St., Boston, Mass.
Chairman, Operating Div.—H. G. Taylor, Lawrence Gas & Electric Co., Lawrence, Mass.
Sec., Operating Div.—R. S. Carter, Malden & Melrose Gas Light Co., Malden, Mass.
Chairman, Sales Div.—J. J. McKearin, Lowell Gas Light Co., Lowell, Mass.
Chairman, Industrial Div.—C. S. Hilton, The Pawtucket Gas Co., Pawtucket, R. I.
Sec.-Tr., Industrial Div.—W. S. Anderson, Boston, Mass.
Chairman, Accounting Div.—G. S. Lees, New Haven Gas Light Co., New Haven, Conn.
Sec.-Tr., Accounting Div.—C. D. Perkins, Malden & Melrose Gas Light Co., Malden, Mass.
Chairman, Manufacturer Div.—A. M. Slattery, The Hoffman Heater Co., Boston, Mass.
Sec.-Tr., Manufacturers Div.—J. H. McPherson, James B. Clow & Sons, Boston, Mass.

New Jersey Gas Association
Pres.—J. D. Alden, Jersey Central Power & Light Co., Asbury Park, N. J.
Sec.-Tr.—H. E. Cliff, Public Service Electric & Gas Co., Newark, N. J.

Ohio Gas and Oil Men's Association
Pres.—L. K. Langdon, Union Gas & Electric Co., Cincinnati, Ohio.
Sec.-Tr.—Wm. H. Thompson, 811 First National Bank Bldg., Columbus, Ohio.

Oklahoma Utilities Association
Pres.—R. J. Daugherty, The Empire Companies, Bartlesville, Okla.
Mgr.—E. F. McKay, 1020 Petroleum Bldg., Oklahoma City, Okla.

Pacific Coast Gas Association
Pres.—James L. Stone, Spokane Gas & Fuel Co., Spokane, Wash.
Mang. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association
Pres.—H. Smyser Bair, Pennsylvania Gas & Electric Co., York, Pa.
Sec.-Tr.—Frank W. Lesley, Pennsylvania Gas & Electric Co., York, Pa.

Pennsylvania Natural Gas Men's Association
Pres.—E. S. Templeton, Greenville, Pa.
Sec.-Tr.—B. H. Smyers, Jr., 435 Sixth Ave., Pittsburgh, Pa.

Southern Gas Association
Pres.—Edward N. Avegno, New Orleans Public Service, Inc., New Orleans, La.
Sec.-Treas.—J. M. Stone, Alabama Natural Gas Corp., 1411 Watts Bldg., Birmingham, Ala.

Southwestern Public Service Association
Pres.—Knox Lee, Southwestern Gas & Electric Co., Marshall, Texas.
Sec.—E. N. Willis, 530 13th Street, SE., Brownsville, Texas.

The Public Utilities Association of Virginia
Pres.—T. Justin Moore, Va. Elec. & Power Co., Richmond, Va.

Wisconsin Utilities Association
Pres.—E. J. Steinberg, The Milwaukee Electric Railway & Light Co., Milwaukee, Wis.
Exec. Sec.—J. N. Cadby, 135 West Wells St., Milwaukee, Wis.

Fourteenth Annual Convention of the American Gas Association
Atlantic City, N. J. - - - October 10-14, 1932

Personnel Service

SERVICES OFFERED

Gas engineer, chemical engineering training, and twenty years' diversified experience in manufactured and natural gas—plant operation, distribution, valuation and general engineering problems, desires connection with holding company or management of fair size property. **541.**

Natural **gas engineer** (29) married; (M. E.) desires position with gas utility as assistant to chief engineer; experienced in compressor station design and testing, selection of compressor station equipment and in economics of investment and operation compressor stations and transmission lines. **546.**

Manager with twenty-five years' experience, manufactured and natural gas; successfully developed new process. Familiar with change-over problems; experienced in valuation and rate study work; have made surveys of property investment, gas consumption and earnings for extensions to adjacent communities. Excellent new business record. As district manager would get results and pay dividends. **548.**

Industrial Gas **Sales** engineer (36) B.Sc. degree in chemistry; fifteen years in the gas industry. Construction, operating and sales experience. Last five years on natural gas industrial sales. Survey work, conversion of oil and coal jobs to natural gas and redesign of furnaces and burners. **549.**

Industrial sales engineer with house heating management experience, covering sales, service and maintenance. Broad general and technical experience of eighteen years. Age 37; married. **550.**

A young executive with several years' experience in **sales** promotion, advertising and gas heating engineering and sales, is now available. **551.**

Utility man (30) desires position with gas company or gas equipment manufacturer. Extensive contacts throughout both fields having held **sales managerships** with utilities and manufacturers. Future possibilities being a primary consideration, salary can be set within reasonable limits. **552.**

Office worker (female) broad experience as general bookkeeper, handling cash, collections, taking and entering orders, and answering mail. Has handled everything pertaining to office duties, signing checks, making out financial reports, taking care of salesmen's commissions on sales, etc., etc. Not afraid of hard work. **553.**

Executive-Engineer (39) has served gas, water and electric utilities in operation, engineering, construction and commercial work over a period of many years. A capable organizer and an intelligent worker not afraid of a difficult situation. Desires position of trust in charge of a property, of engineering department, or as executive assistant. **554.**

Manager, having had practical experience in all branches of utility work, therefore knows the details and qualified to supervise operations, public relations, construction, high- and low-pressure distribution and business. Have served in managerial and executive capacity for a number of years. Familiar with rate procedure, purchasing, display and office routine. By what you profit I gain. Available on short notice. **555.**

Plant **superintendent** and gas **engineer** (34) married, college trained; ten years' practical experience in production of coal gas, water gas, high- and low-pressure distribution. Capable of superintending meter repair shop. Is employed at present but desires connection with growing organization where hard work and honest effort will result in advancement. Does not object to taking plant in run-down condition. **556.**

Chemist with thirteen years' experience in research, analysis, and control. Yale graduate, (36) married. Four years' experience in manufacture of coal and water gas, chemical and physical testing of gases. Can qualify as Superintendent's Assistant, in production or laboratory. **557.**

Meter repair man (37) broad experience in gas company and meter manufacturer repair shops; competent fitter on district, services, meters, ranges, etc. **558.**

Can qualify as **sales manager** or assistant. Have had ten years' sales experience in large Eastern Gas Company. Can go anywhere. **559.**

Sales engineer, technical graduate; twenty years' very broad experience in design and sale of gas plant equipment including gas holder and plate work; also experience in operation and control of large holding company gas properties. Exceptional public utility contacts with all the key men in all properties and holding companies in eastern United States. Excellent financial and executive sales record with well-known manufacturer of gas equipment. Past seven years had complete charge as sales manager in East. **560.**

Gas man; **shop foreman** for years, thoroughly experienced in all branches of the business; outside work on high- and low-pressure mains, services, governors, house installations, etc. Also gas-fired boilers, refrigerators, and complaint work. Over twenty years' experience; location anywhere. **561.**

Not "Where are our sales?" but "Where is our man?" Your sales won't come now-a-days. They must be created by a **Sales Director** with creative ability. This one contributed to the A. G. A. training courses in domestic and industrial salesmanship, knows advertising, promotion, hiring, training, supervising—is thirty-nine, soundly aggressive. **562.**

Systems accountant, auditor, office manager in large utility or holding organization. Thirteen years' valuable experience all phases public utility office problems, also many years specializing accounting machine applications, analysis, sales and installations on such work. Splendid references all employers. Age 43, married. Location preferred: Great Lakes region. **563.**

Sales executive, five years with large manufacturer of house heating equipment ready to take on house heating campaign for utility wanting to increase load. Can train, educate and supervise salesmen that they produce results. Size of opportunity for proving ability and compensation are important factors. **564.**

Management, design, supervision, gas utilities, manufactured and natural. Graduate in engineering with over thirty years' experience in all branches of design, erection, operation and management; familiar with valuation and rate procedure. Specially fitted to handle engineering of large property or group of properties. **565.**

Sales engineer of mature experience, thoroughly competent to establish contacts, make plant surveys, design combustion equipment and sell same for utility or manufacturer. Experience gained with outstanding public utility. Always held responsible positions and prepared to demonstrate ability to take charge of sales department, if desired. Experienced in all fuels. **566.**

Experienced **house heating** sales engineer familiar with application of all types of gas heating equipment. Have sold direct for Eastern gas company and covered territory for leading boiler manufacturer. Technical education and seven years' experience. Age 28; married. Eastern or Southern location preferred. **567.**

Public relations manager or assistant available. Thoroughly experienced in all types of publicity; public speaking organizer and public contact man. Knows all angles of utility problems. Desires a position of responsibility where his experience and wide range of activity will be of value to his employer. **568.**

Engineering specialist in gas plant design and construction (Batchelor and Professional Degrees). Broad international experience with the two leading gas engineering and contracting organizations. Thoroughly familiar with the most modern generating, condensing, cleaning and storage equipment. Wide acquaintance with the principal operating executives of the industry. Earlier experience in structural and industrial plant engineering and college instructorship. **569.**

POSITIONS OPEN

Manufacturers' agents wanted in a number of territories to take on complete line of warm air furnaces and air conditionings. **0236.**

Manufacturer of approved gas appliances wishes representation, through **manufacturers agents,** for gas thermostatic controls. **0239.**

Manufacturers Agents and **Salesmen** wanted by manufacturer of gas boilers and furnaces, also residence air conditioning systems. Commission basis. Advise lines now handling, and territory covered. **0240.**

Distribution Department of small gas company in the near future will require a **practical man** who is able to read, test and repair meters; who is capable of installing ranges and appliances and who is capable of installing services and mains; a man who is thorough in all of the foregoing. **0241.**

THE LETTER OF APPLICATION

You must be able to write a good letter. It is really not much more difficult to write a good letter than to write a bad one, yet poor letter-writing is so prevalent, especially among job-seekers, that a well prepared letter stands out vividly from the mass.

There are three essentials for every good letter of application (1) It must be mechanically perfect. It must be correct as to spacing, margins, spelling, neatness, and general appearance. (2) It must contain the necessary facts and (3) The thought must be expressed in a logical, concise, straightforward manner.

Unless specifically instructed otherwise, *always write your letter of application on a typewriter.* Give only those facts concerning your previous experience which have some bearing on the job for which you are applying. Always state the facts required by an advertisement in replying.

Having written your letter as briefly as you believe possible, go over it carefully, eliminating every word or phrase that is not absolutely necessary to the clear expression of the thought.

Courtesy *Finding Your Job* by Norman G. Shidle.

Advisory Council

E. R. Acker ..... Poughkeepsie, N. Y.
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T. N. McCarter ..... Newark, N. J.
S. W. Meals ..... Pittsburgh, Pa.
H. C. Morris ..... Dallas, Texas
F. H. Patterson ..... Rochester, N. Y.
F. H. Payne ..... Erie, Pa.
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George E. Whitwell ..... Philadelphia, Pa.

AMERICAN GAS ASSOCIATION, INC.

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